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THE GEORGE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE AND HEALTH SCIENCES



A CLEAR PATH TO THE HEART

Cardiac Interventionalist
Ramesh Mazhari, M.D.



Affirming a Profound Association with GW

This column is the first in my current role as interim vice provost for health affairs and dean of GW's School of Medicine and Health Sciences (SMHS). I was appointed in December 2010 as the Medical Center embarked on a complex reorganization. In addition to those administrative changes, this has truly been a remarkable year for SMHS in terms of its faculty recruitments, its medical student and residency matches, its research productivity, and the enhanced stature of its academic programs.

This also was a year, however, in which two GW doctors, important to me in very different ways, passed away. One of these physicians, Herbert Weintraub, M.D., was well known to our SMHS family. The other physician, Leonard C. Akman, M.D., was best known by his fellow members of the Class of 1943.

Herb Weintraub was a highly esteemed former chair of GW's Department of Anesthesiology. Although I knew him only in his post-retirement years, he was part of the generation of nationally recognized academic physicians who came to GW in the 1970s and built the modern academic medical center that we know today.

This group included many of Herb's colleagues: Burt Epstein (anesthesiology), Allan Weingold (OB/GYN), Sy Perlin (psychiatry), and many others who trained thousands of GW residents, medical students, and health science students. They also educated and trained many of the current and former leaders at SMHS, including me. I am profoundly grateful to Herb and the other faculty who led the Medical Center for three decades.

A few days before I left to begin medical school at GW, my father's cousin, Leonard Akman, dropped by my family's home for a visit. Leonard, an SMHS alumnus, was a very private man and a highly regarded cardiologist. So it was a great surprise when he gave me a beautiful new microscope.

Today, medical students learn microscopic anatomy sitting in front of a computer screen. In 1977, however, we brought our own microscopes to learn histology, microbiology, and pathology. That gift was a demonstration of Leonard's profound, quiet connection to GW.

Through the years, GW colleagues would ask me about Leonard. He remained private, however, and while his relationship with my family blossomed, he still had little contact with his classmates. But, thanks to my encouragement, Leonard returned to GW in 1993 to celebrate his 50th M.D. class reunion. It was a joyous occasion for him and gave me further understanding of the crucial role that GW played in his life.

I doubt that Herb Weintraub and Leonard Akman knew each other. Yet both their lives were profoundly influenced by their association with GW, and both showed their gratitude with generous bequests to the school. Herb's gift will support residency training in the Department of Anesthesiology. Leonard's gift will support education and scholarships in the name of his parents.

My leadership role at SMHS is influenced by Herb Weintraub and his generation of physicians, and by Leonard Akman's love of his alma mater.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jeffrey S. Akman'.

JEFFREY S. AKMAN, M.D. '81, G.M.E. '85

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Anne Brataas
Adrian Larssen
Gary Libman
Julia Parmley
Peter Sergo

ART DIRECTOR
Amelia Costigan

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editor@gwumc.edu

www.smhs.gwumc.edu



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Ramesh Mazhari, M.D.
Photograph by Holger Thoss



White Coat Event Signals the Start of Something Big

More than 180 students were welcomed into the GW medical community at the annual White Coat and Honor Code Ceremony in Lisner Auditorium Aug. 20. Students received their first white medical coats, signifying the start of their journey toward careers in the medical profession. They also recited the GW School of Medicine and Health Sciences (SMHS) Oath and signed the GW Honor Code pledge.

GW's class of 2015 — the most competitive in the history of SMHS — represents 29 states, the District of Columbia, and Canada. Among its ranks are 23 emergency medical technicians, a professional lacrosse player, and a Fulbright Award winner.

Edward O'Neil Jr., M.D. '87, associate professor of emergency medicine at Tufts University, gave the keynote address.

O'Neil — who founded Omni Med, a Massachusetts-based nonprofit that trains health providers and community workers and runs health service programs in Uganda, Belize, Guyana, and Kenya — described the “sense of wonder” he felt during his first days as a physician and his health care work in some of the poorest regions in the world. He told the first-year medical students that physicians get to “perform miracles.

“As you start on this wonderful career of becoming physicians, I would ask that you find a passion to make a difference somewhere in your lives,” he said, adding, “engage in the problems of the world, because they are many.”

The annual event is sponsored by the GW Medical Alumni Association and the White Coat Initiative, who generously donate the funds to purchase each new class's white coats. This year's celebration was co-chaired by second-year medical students Todd Spock, DiAnne Davis, and Sarah Todd. ■



Henry J. Kaminski, M.D.

Neurology Welcomes New Chair Kaminski

Following an extensive national search, GW's School of Medicine and Health Sciences (SMHS) has selected Henry J. Kaminski, M.D., as the Meta Amalia Neumann Professor and Chair of the Department of Neurology. Kaminski most recently served as professor and chair of the Department of Neurology and Psychiatry and director of the Clinical Research Unit at Saint Louis University, and officially joined the GW faculty on Sept. 1, 2011.

“Dr. Kaminski is an internationally recognized expert in care of patients with myasthenia gravis, and his research has received continuous sponsorship by the National Institutes of Health since 1993,” said Jeffrey S. Akman, M.D. '81, G.M.E. '85, interim vice provost for Health Affairs and dean of SMHS. “I have every confidence that he will bring strong leadership to the department.”

Kaminski's studies are focused on understanding the biology of the extra-ocular muscle and the pathogenesis of myasthenia gravis. His laboratory is currently working to develop inhibitor-based treatments for myasthenia gravis and other neuromuscular disorders.

Kaminski replaced John J. Kelly, M.D., who had served as professor and chair of the department with distinction for the last 20 years. ■



A Prescription for Change

The thought first struck what Vinayak Jha, M.D., assistant professor of Medicine, calls his “ridiculous nerve.”

Then, it struck his curiosity nerve, which struck his action nerve. Suddenly, Jha — a pulmonary disease specialist and amateur community organizer — became committed to a cause that, just minutes earlier, he hadn’t known existed.

“When I learned that the sale of tobacco had been banned in pharmacies in San Francisco and Boston, I wondered what the status was in D.C.,” he recalls. “It didn’t take long to figure out that there is no status in Washington, D.C. In fact, hardly anyone had even heard of the issue.” And so he decided it was a cause worth fighting for.

TobaccoFreeRx, Jha’s resulting campaign, seeks to eliminate the sale of tobacco in Washington, D.C., pharmacies (including retail stores that contain pharmacies) through a combination of grassroots advocacy, endorsements from professional and government organizations, and tactics of “embarrassment and exposé,” he admits.

“What characterizes a place that calls itself a pharmacy is having a health care provider who is licensed by the Department of Health, whose sworn goal — and personal philosophy — is to keep people healthy,” Jha reasons. “Unlike a convenience store or gas station, these places are operating as health care enterprises, so they shouldn’t sell the same products that will cause the diseases for which you need the medications.”

Since the launch of TobaccoFreeRx, Jha has emerged as an accessible resource for other activists across the country. He has helped an Oregon county health department pass an ordinance prohibiting tobacco sales in pharmacies and an anonymous pharmacist write a tobacco-free policy for a pharmacy chain.

Locally, Jha has presented his case to the D.C. Board of Pharmacy and initiated discussions with the D.C. Department of Health and the dean of the Howard University School of Pharmacy.

Jha says that legislation is not the only route to success. Most importantly, he hopes his efforts will strike other people’s ridiculous nerves. “I hope this is just a moment in time,” he says, “and maybe 10 or 20 years from now we’ll look back and say, ‘Boy, isn’t it ridiculous that pharmacies were still selling cigarettes in 2011?’ ” ■

Avon Foundation Supports Patient Navigation, Breast Cancer Tests

The George Washington University Cancer Institute (GWCI) and the School of Medicine and Health Sciences (SMHS) received a pair of grants from the Avon Foundation totaling \$400,000 to support patient navigation services and research to develop a new test to assess risk of breast cancer. Christina Cianflone, director of GWCI’s Division of Cancer Prevention and Community Health, accepted a check on May 1, during the closing ceremony for the Washington, D.C., Avon Walk for Breast Cancer.

“The support of the Avon Foundation allows us to continue to provide access to screenings and follow-up care for women in the most vulnerable populations and expand our patient navigation services in the GW Breast Imaging Center,” said Cianflone.

GWCI received a \$250,000 award to support three patient navigation and education programs — a partnership with the Capital Breast Care Center to help underserved women receive screening and follow-up care; patient navigation services offered by the GW Breast Imaging and Intervention Center, and GWCI’s m-health Breast Self-Exam Reminder Text Message Program.

For the third consecutive year, SMHS received a \$150,000 Avon grant to support research led by Patricia Berg, Ph.D., professor of Biochemistry and Molecular Biology. The project seeks to develop a new test to assess risk of breast cancer. ■



Schistosome Cercariae

Schistosome Parasites Linked to Deadly Bladder Cancer

Researchers at GW's School of Medicine and Health Sciences (SMHS) have identified a gene that enables the parasite *Schistosoma haematobium* to establish a foothold in its human host, which ultimately may lead to a devastating form of bladder cancer.

Schistosomes, or helminth worms, are waterborne parasites that can cause chronic inflammation and fibrosis in the liver, symptoms that may migrate to the bladder, causing inflammation, granulomas, and eventually, bladder cancer. The worm is responsible for two-thirds of the world's 200 million to 400 million cases of human *schistosomiasis*, resulting in an estimated 280,000 deaths per year.

In the July issue of the journal *Hepatology*, researchers from SMHS describe how they demonstrated the role of the metastasis-associated protein-1 (MTA1) gene in the proliferation of schistosomes. They infected two strains of mice with *schistosome cercariae*, a larval stage of the parasite. One group of mice, wild-type, had an intact MTA1 gene in their DNA. The other mice, MTA1^{-/-}, lacked that gene, but were otherwise genetically normal. MTA1 is a crucial gene that controls the process of chromatin remodeling of cytokines, including those responsible for inflammation. By using the mice that lacked the gene, inves-

tigators were able to compare their reaction to parasite infestation to that of the normal, wild-type mice.

At various stages after infection, blood from the portal circulatory system of the liver was analyzed for worms and parasite eggs. "At the 12th week of infection, we found that the wild-type mice had severe granulomatous lesions in the liver," says lead author Sujit Nair, Ph.D., assistant research professor in SMHS's Department of Biochemistry and Molecular Biology. "Their worm count was very high. In the mice that did not have the gene, however, there were neither worms nor eggs that we could collect from the portal perfusion."

From these results, the researchers concluded that absence of the MTA1 gene does not compromise the mice's susceptibility to the parasite infection, but it does limit the survival or maturation of schistosomes in the host, and possibly egg release and deposition.

Senior author Rakesh Kumar, Ph.D., professor and Catharine Birch & William McCormick Chair of Biochemistry and Molecular Biology, explains that expression of MTA1, a nuclear protein, regulates the expression of inflammatory cytokines that are produced by Th1 and Th2 cells of the immune response. By increasing the expression of MTA1 in the wild-type mice, the parasite "hijacks" the gene, "which in turn allows it to up-regulate pro-inflammatory cytokines, and these pro-inflammatory cytokines in turn will provide a favorable atmosphere for the pathogens to grow and cause a persistent inflammation," he says. "It's the persistent inflammation over time that we believe can lead to cancer." ■



Eliminating Breast Cancer Disparities

Debbie Wasserman Schultz is often told that she is lucky to be alive. The 45-year-old congresswoman from Florida and the new chair of the Democratic National Committee overcame a particularly lethal type of breast cancer, but she says her survival has more to do with awareness and education than luck.

As the keynote speaker at the “Eliminating Breast Cancer Health Disparities: Communicating to At-Risk Populations” symposium, Wasserman Schultz used her story to underscore the importance of both knowledge and access to care in the fight against breast cancer — a disease whose prevalence and severity varies with ethnic background. The event, hosted by GW’s School of Medicine and Health Sciences, the GW Medical Faculty Associates, the Avon Foundation for Women, and Friends of Cancer Research, explored how cancer centers, community health centers, advocacy organizations, and government agencies can improve communication with underserved populations in order to eliminate breast cancer disparities.

The symposium featured a panel of local and national breast cancer advocates led by Rachel Brem, M.D., director of GW’s Breast Imaging and Intervention Center, who emphasized that a multifaceted solution is needed to address breast cancer disparities that arise from both biological differences and societal barriers to care. Suggestions included boosting minority enrollment in clinical trials and increasing the use of patient navigators.

“If there is one message here, it’s that there are multiple messages,” concluded Brem. “We have to work collaboratively with research, with education, with community health services in order to really optimize the care for all women.” ■

GW Cheney Institute Donates 100th Life-Saving Automated External Defibrillator

Sudden cardiac arrest (SCA) is the nation’s leading cause of death, claiming more lives each year than breast cancer, lung cancer, and HIV/AIDS combined. Starting with an electrical disruption in the heart’s normal rhythm, SCA leaves victims with weak, fluttering heartbeats. Blood stops flowing properly, depriving the body of precious oxygen. Brain injury will ensue unless blood flow is restored within five minutes. According to the American Heart Association, for each minute of delay before normal blood flow is restored, the likelihood of survival decreases by 10 percent. Overall, survival rates for SCA range from a high of 16.3 percent to a low of 3 percent in some regions of the country.

District of Columbia Public Library System patrons and employees now stand a better chance of beating those odds, thanks to The George Washington University Cheney Cardiovascular Institute’s “ReStart DC” program, which donated automated external defibrillators (AEDs) to all 25 library locations. The AEDs, presented in May at the library system’s Chevy Chase branch, marked the 100th community donation since the ReStart DC AED program was launched in 2009.

The Cheney institute launched the program with the goal of increasing survival rates from SCA in the District of Columbia. So far, it has donated AEDs to nonprofit organizations, community centers, houses of worship, and other organizations. ReStart DC also provides AED training, medical oversight, and direction for organizations serving low-income communities throughout the city. Now commonplace in public settings, such as airports, shopping malls, schools, and office buildings, the easy-to-use devices are safe to operate and proven to save lives when seconds count the most.

“As great as our cardiac program is, patients often reach us too late,” says Jonathan Reiner, M.D., professor of Medicine and director of The George Washington University Hospital’s Cardiac Catheterization lab. “By deploying AEDs and training people in CPR, we are enlisting the entire community to help in our efforts to improve survival rates by speeding the response to cardiac emergencies.”

AED donations to the DC Public Library system were made possible through the efforts of volunteers with the Friends of the DC Library and Mended Hearts, which raised a portion of the funding, as well as support from Philips Healthcare. ■



New Guidelines for Thyroid Disease During Pregnancy and Postpartum

An American Thyroid Association (ATA) task force led by Alex Stagnaro-Green, M.D., senior associate dean for Education and professor of Medicine and of Obstetrics and Gynecology at the GW School of Medicine and Health Sciences (SMHS), recently announced new guidelines for the diagnosis and management of thyroid disease during pregnancy and the postpartum period. The guidelines, published in the July edition of the journal *Thyroid* (v. 21, n. 10), are the culmination of nearly two years of comprehensive analysis of current practice, academic literature, and emerging research into the treatment of thyroid disease and its effects on pregnancy and postpartum.

During pregnancy, the thyroid — an endocrine gland that regulates metabolism and influences critical body functions such as heart rate — produces up to 50 percent more hormones than normal. “In essence,” explains Stagnaro-Green in the task force report, “pregnancy is a stress test for the thyroid, resulting in hypothyroidism in women with limited thyroidal reserve or iodine deficiency.”

Over the years, a growing body of research — much of which has been conducted by Stagnaro-Green himself — has indicated that even slightly too much or too little thyroid function during pregnancy can raise the risk of spontaneous miscarriage, preterm delivery, and a decreased IQ in the unborn child. But until now, this and other related research has not been translated into guidelines for clinical practice.

Stagnaro-Green’s international team of experts included thyroidologists, obstetricians, and midwives in order to develop guidelines that would be comprehensive and widely adoptable. Together, they developed 73 recommendations in nine areas, which are thyroid function tests, hypothyroidism, thyrotoxicosis, iodine, anti-thyroid antibodies and miscarriage/preterm delivery, thyroid nodules and cancer, postpartum thyroiditis, screening during pregnancy, and areas for future research.

Each guideline was reviewed on the basis of the varying levels of conclusive evidence; thus, the task force rated the strength of each according to the United States Preventive Services Task Force Guidelines. Of the 73, only 18 received the highest recommendation level — an indication that there is still much to learn about the role of the thyroid during pregnancy and the postpartum period.

“It is our hope that the present guidelines provide useful information to clinicians and help achieve our ultimate goal of the highest quality clinical care for pregnant women and their unborn children,” Stagnaro-Green concluded. ■

NCI-NIH Award Helps Researchers Battle Parasite-Induced Cancer

Researchers from GW’s School of Medicine and Health Sciences (SMHS) received a \$2.5-million grant from the National Cancer Institute of the National Institutes of Health to develop a technique for detecting a deadly form of bile duct cancer caused by parasites. The R01 award supports a team of SMHS researchers developing proteomic biomarkers for *Cholangiocarcinoma* (CCA), a cancer caused by the liver fluke *Opisthorchis viverrini*. The foodborne parasite currently infects more than 40 million people, primarily in the Southeast Asian countries of Thailand, Laos, and Cambodia, where fish infested with the parasite are a staple of the local diet.

“CCA is a serious cancer with a very poor prognosis,” says Paul Brindley, Ph.D., a tropical disease specialist and professor in SMHS’s Department of Microbiology, Immunology, and Tropical Medicine (MITM). Because patients often have nonspecific symptoms, such as abdominal pain and fatigue, the cancer “is usually not diagnosed until it’s well advanced, and sadly, people generally don’t live very long after it’s diagnosed,” he adds.

The GW research team, led by Brindley and Jeffrey M. Bethony, Ph.D., associate professor in MITM, will use a quantitative proteomics approach to scan tumor tissues and matched plasma from bile duct cancer patients to

CCA is a serious cancer with a very poor prognosis because patients often have nonspecific symptoms and the cancer is usually not diagnosed until it's well advanced . . .

identify potential biomarkers near the disease site. The researchers will then verify these markers by examining plasma from members of the study who are at risk for the cancer but are currently healthy.

The GW team will partner with Jason Mulvenna and Alexander Loukas from the Queensland Tropical Health Alliance, James Cook University, in Cairns, Australia, and Banchob Sripa, head of the Tropical Disease Research Laboratory, Department of Pathology, Faculty of Medicine at Khon Kaen University. Although parasite-induced cancer is a serious problem throughout Southeast Asia and southern China, its epicenter is near Khon Kaen University in northeastern Thailand.

Brindley and Bethony began the CCA cohort study as part of an International Collaborations in Infectious Diseases Research grant awarded by the National Institute of Allergy and Infectious Diseases. Researchers recruited residents from the endemic areas along the Chi River basin in northeastern Thailand, and they are currently following more than 1,000 individuals identified to be at high risk of developing liver fluke-induced bile duct cancer. ■

Stem Cells Take Cues from Fluid in the Brain

Circulating in the fluid surrounding the brain is a little-known protein that, researchers have discovered, plays a crucial role in the growth and position of cells in the developing cortex. The discovery, made by a multi-institutional research team at Children's Hospital Boston led by Maria Lehtinen, Mauro Zappaterra, and Christopher Walsh and researchers from GW's School of Medicine and Health Sciences (SMHS), was published in the March 10 edition of the journal *Neuron*.

"This study is a game changer," says Anthony-Samuel LaMantia, Ph.D., director of the GW Institute for Neuroscience at SMHS, and an author of the paper along with Thomas Maynard, Ph.D., associate professor of Pharmacology and Physiology at GW. "It's remarkable that signals are coming from the cerebrospinal fluid — it makes sense, but no one really thought about it in this way."

The cerebrospinal fluid was originally thought to be simply a colorless salt solution that served to cushion the brain and help maintain ionic balance, but when scientists looked more closely at it, they discovered something unexpected. The fluid contained high levels of a particular protein that signals brain cells to multiply at a critical moment in embryonic brain development. Researchers identified an insulin-like protein (Igf2) in the cerebrospinal fluid of mouse embryos that is known to prompt stem cells to multiply and differentiate. When the researchers blocked Igf2, stem cells in the brain stopped making brain cells, and when the team placed brain stem cells in a dish filled with Igf2-rich cerebrospinal fluid, the cells proliferated rapidly. "This was clearly the environment the stem cells needed to be happy," LaMantia explains.

Brain cells in the cortex — the outermost layer of the brain responsible for cognition, learning, and memory — multiply and move to their appropriate position between the second and third trimesters of development. But until now, researchers have had little luck finding the molecular signals that direct the process.

Brain cell proliferation, however, is a good thing only when the time is right. Unrestrained growth leads to tumors. According to this report, Igf2 knows when to activate thanks to proteins in the long glial cells that stretch from the inner part of the brain to its outer layer. These cells form early in development, and serve to guide younger brain cells on the way to their appropriate positions during development.

If one of the steps in this pathway goes awry, Igf2 could be activated at the wrong time, causing uncontrolled proliferation. Indeed, brain cancer patients who have the worst prognoses appear to have the highest levels of Igf2.

The fact that vital signals are sent from cerebrospinal fluid, however, could be good news for patients suffering from brain cancer. "It's difficult to deliver a drug that will influence a specific spot within the brain tissue," says LaMantia. Instead, clinicians might one day infuse brain fluid with medicine — possibly one that blocks the signals from Igf2 telling cells to proliferate. "The possibilities for using the fluid as an efficient mechanism to deliver small molecule drugs are endless," he says. ■



A Legacy of Excellence

ANTON SIDAWY, M.D., M.P.H., SHARES HIS VISION FOR THE FUTURE OF SURGERY AT GW

by Adrian Larssen

When Brian Blades, M.D., was appointed chair of Surgery in 1946, there was no way he could have imagined what his department would look like today. If he saw it now, he might compare the hospital's computer-controlled robots — which frequently replace traditional scalpels — to visions possible only in science fiction novels. Surgeons, he might marvel, are no longer limited by the flexibility of their wrists or the acuity of their vision as they perform complex procedures.

Blades couldn't know what the future would hold, but he did have a vision: One that built a foundation that made all of today's accomplishments possible, says Anton Sidawy, M.D., M.P.H. '99, who began his tenure as chair of the department in December 2010.

Now, Sidawy, an internationally renowned vascular surgeon, former chief of surgical services at the D.C. Veterans

Affairs Medical Center, immediate past president of the Society for Vascular Surgery, and current editor-in-chief of the *Journal of Vascular Surgery*, has his own vision: "to take what is excellent and improve upon it."

Sidawy, who has served on the GW faculty for 25 years, aims to expand and reorganize the department, adding surgical services, programs, and divisions, as well as a greater number of specialized subspecialties. "When you come to GW as a patient," he explains, "not only will you be treated by a specialist, but you will be treated by a specialist with a very specific interest in your condition."

He has started the process by expanding a division he knows much about: vascular surgery, which was formerly a two-person operation. Sidawy added four surgeons to the team with a diverse set of interests, dramatically expanding the division's clinical clout and workload. "In a short time, it has become one of the most comprehensive groups in the region," he notes. Most of the new faculty members also will be conducting research and boosting the department's capacity for clinical studies and trials.

In addition, the Division of General Surgery will be restructured to promote the growth of subspecialties, including hepato-biliary-pancreatic surgery, bariatric surgery, minimally invasive surgery, foregut surgery, and trauma. Currently, a national search is under way for a new director of trauma. When the position is filled, Sidawy will have increased the department's full-time faculty by about 25 percent.

"It's all really exciting. We are bringing in surgeons who not only are clinically top-notch, but also have research potential and are excellent educators," he says.

Sidawy also hopes to build upon the department's educational endeavors, and recently founded the Division of Surgical Education, which will incorporate faculty from all specialties to study and develop new educational paradigms for students and residents.

Meanwhile, Sidawy remains cognizant of the department's storied past. He recently renamed the resident teams (formerly merely numbers) after Blades and other former chairs, including Paul Adkins, M.D., a renowned thoracic surgeon; Ralph DePalma, M.D., who strengthened GW's surgical residents' research efforts; and Joseph Giordano, M.D., the founder of the GW Trauma Center. "This reminds residents and students of the excellent history the department has had over the years, and provides them and the junior faculty with a sense of continuity and historical perspective they can be proud of," he explains.

And Sidawy feels the same way about his new post. "On a daily basis, I work with surgeons who want to do the best they can do for patient care, education, and advancing the science of surgery," he says. "I feel quite fortunate and proud to be given the opportunity to lead this department at GW, and to work with an excellent group of surgeons at this stage of my career." ■



Hair Loss Remedy Linked to Loss of Libido

**ASSISTANT PROFESSOR MICHAEL S. IRWIG, M.D.,
UNCOVERS SERIOUS PROBLEMS WITH PROPECIA**

by Thomas Kohout

According to the American Academy of Dermatology, roughly 50 million men and as many as 30 million women in the United States experience some form of hereditary hair loss. And by most accounts, Americans spend more than \$1 billion each year on shampoos, potions, pills, toupees, and transplants to ward off the effects of hair loss. But how much is too much to pay for a full head of hair?

A new study by Michael S. Irwig, M.D., and assistant professor of Medicine in the Division of Endocrinology at GW's School of Medicine and Health Sciences, who is also director of the Center for Andrology, suggests that men who take the hair loss drug finasteride — marketed by Merck under the trademark Propecia — may be paying a much steeper price than they expected. In the study, published in the *Journal of Sexual Medicine*, Irwig reveals that otherwise healthy men taking finasteride may experience ongoing sexual side effects well after they stop using the medication.

That news has attracted global attention; Irwig and his study have been widely featured in print, broadcast, and online media, including *MSNBC.com*, *Time.com*, and *la Folha*, one of Brazil's largest newspapers. The story was featured on CBS television stations in Chicago, New York, and Philadelphia, as well as on CBS Radio.

Finasteride inhibits the enzyme that converts testosterone to dihydrotestosterone, the male hormone associated with virilization and male pattern baldness. The drug was initially approved by the U.S. Food and Drug Administration (FDA) in 1992, under the brand name Proscar, as treatment for an enlarged prostate. Five years later, the FDA approved finasteride under the name Propecia to treat male pattern baldness.

An endocrinologist by training, Irwig launched the study after seeing several patients who reported persistent sexual side effects despite having stopped taking finasteride. He then found a website featuring posts about persistent sexual and other problems that adversely affect quality of life, with entries from more than 1,400 men.

Irwig studied a pool of 71 healthy men ages 21 to 46, who did not report any psychological issues such as anxiety or depression before starting finasteride. A staggering 94 percent of the men said they developed low sexual desire, 92 percent said they developed decreased arousal, 92 percent reported developing erectile dysfunction, and 69 percent said they developed problems with orgasm. Most patients used finasteride for an average of 28 months, but sexual side effects lasted for an average of 40 months after use was discontinued.

In the study, said Irwig, “we sought to characterize the types and duration of persistent sexual side effects in otherwise healthy men who took finasteride.” He added that prior to his research, nobody had really described this effect. “While finasteride has been associated with reversible adverse sexual side effects in multiple randomized placebo-controlled trials, this is the first series to find that symptoms persisted for at least three months despite stopping finasteride.”

Although all the patients experienced the side effects for at least three months after they stopped using finasteride, explained Irwig, “as many as 20 percent said problems persisted for up to five years.”

The exact incidence of persistent sexual dysfunction is unknown, according to Irwig, because there is no accurate count of the number of people who have been prescribed the drug. He recommends that men contemplating the use of finasteride, whether for baldness or an enlarged prostate, discuss the potential risk for persistent sexual side effects with their doctors.

“Many of the men said, ‘Had I known about this beforehand I might have chosen another option,’ ” said Irwig. “It underscores how important it is for physicians who are treating male pattern hair loss to discuss the potential risk of persistent sexual side effects with their patients.” ■



Brian Choi, M.D., assistant professor of Medicine in the Division of Cardiology, with an iPad displaying an echocardiogram.

Practicing Smarter with m-health Technology

The world is growing smaller as the cost of mobile technology plummets and more high-powered smartphones reach the hands of eager new customers. Many observers expect global mobile communications penetration to reach 100 percent within the next five years, and by 2016 there will hardly be a spot on the planet where one can't place a call using a cell phone.

Although the surge of mobile technologies is good news for telecommunications companies, it's even better news for those in need of health care when access is a problem. Through m-health, or the rapidly evolving practice of medicine and public health via mobile communications devices, the face of patient care is changing as studies and pilot

programs test the efficacy of the handheld devices for use in medicine.

Members of GW's School of Medicine and Health Sciences (SMHS) are leading the way in these endeavors, exploring m-health technology for use in a variety of areas including critical cardiac diagnoses, medication adherence, and diabetes management.

SMARTPHONES, SMART HEART

One of these studies, led by Brian Choi, M.D., assistant professor of Medicine in the Division of Cardiology, recently confirmed that echocardiogram images taken with mobile cardiac ultrasound devices are as readable and accurate on smartphones and tablet computers as they are on a conventional workstation. These findings mean expert echocardiographers can receive, review, and interpret high-quality images transmitted directly from the field using handheld ultrasound devices, making critical diagnoses more accessible and patient care more efficient.

The study began in August 2010, when Cindy Tracy, M.D., professor of Medicine and director of Cardiac Services at GW Hospital, led a medical mission to Honduras in a particularly inaccessible mountainous region of Central America. Because of the remote location and a limited ability to bring diagnostic equipment, Choi suggested the team use a handheld ultrasound device called a GE Vscan.

"The GE Vscan was perfect for this kind of application because it's so portable," Choi recalls. The Cheney Cardiovascular Institute took Choi's advice and purchased the device for the trip, allowing Tracy's team to collect diagnostic images. "I was interested in looking at those images to determine if reading them off of a smartphone was as accurate as reading them on a traditional workstation."

Working with third-party commercial software developer mVisum, which created the HIPAA-compliant smartphone application, Choi sent echocardiographs from 89 patients for analysis by two experts in the United States, who reviewed them on conventional workstations. Afterward, the images were also sent to echocardiographers who reviewed them using a smartphone. Choi then compared the results. The smartphone diagnosis was considered accurate only if an abnormal finding matched at the same level of severity as the interpretation made using the conventional workstation.

"The correlation between the two was very high," says Choi. "We did a statistical test that showed the diagnoses matched 90 percent of the time. Now that we know reading echoes from a smartphone is nearly as accurate as reading them from a workstation, the key is figuring out how to best incorporate this technology into a standard of care."

The devices' implications for medical missions to underserved locations are clear, but, Choi argues, there are practical applications for the United States as well. "Not only can there be a similar interaction between rural sites and tertiary referral care centers," he says, "but also, these devices could fill an important gap in urgent and off-hours interpretations when experts may not be immediately available."

MEDICATION ADHERENCE: PHONING IT IN

GW physicians are also exploring how cell phones might improve medication adherence among patients with hypertension, a disease estimated to affect more than 65 million adults

in the United States. Following prescriptions is particularly important for blood pressure patients because poor adherence to medications can result in serious complications, such as kidney disease. What's more, many patients who suffer from high blood pressure also have other conditions that could result in a drug regimen of up to 10 pills a day.

With a grant from Qualcomm's Wireless Reach initiative, and contributions from One Economy, Cricket Communications, and VOCEL, GW researchers led a seven-month study to determine whether 3G wireless-enabled cell phones with a mobile medication reminder application could engage patients, improve health outcomes, and reduce health costs. They nicknamed the device the Pill Phone.

"High blood pressure and diabetes are the leading causes of kidney disease, and Washington, D.C., has some of the highest rates of end-stage kidney disease in the nation," says Richard Katz, M.D., Bloedorn Professor of Medicine and director of the Division of Cardiology. "The Pill Phone Research Study offers a model for disease self-management that can be applied to at-risk communities."

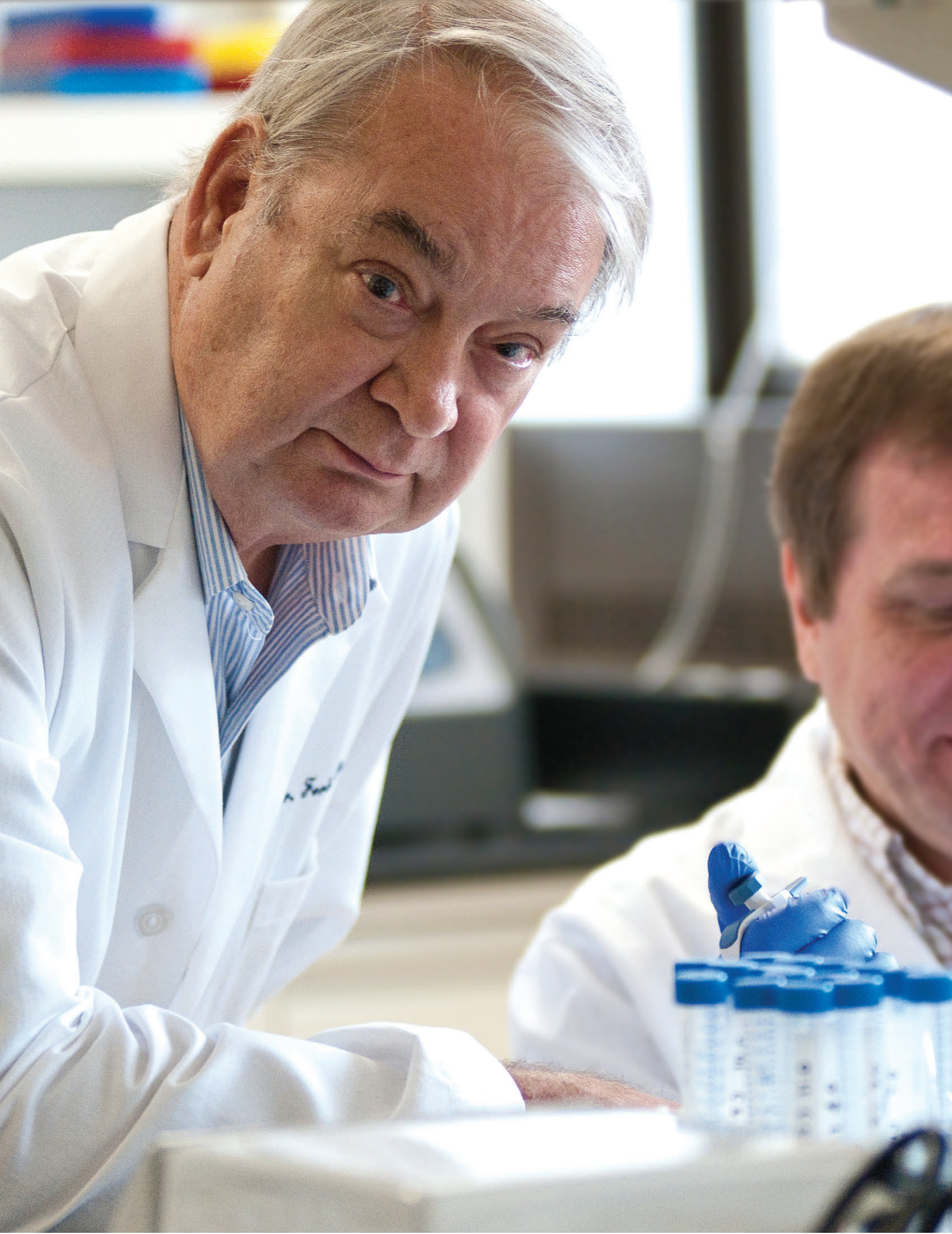
Patients received 3G wireless handsets preloaded with the Pill Phone application. They received medication dosage reminders, tracked dosage records, images of the pills, and real-time information about potential drug side effects and interactions. Health care providers were able to remotely monitor patient adherence through a secure website.

MOBILE TECHNOLOGY AND MANAGING DIABETES

Meanwhile, two teams of GW researchers are focusing their efforts on the impact of mobile technologies on diabetes care and management. The teams received grants from the McKesson Foundation as part of its Mobilizing for Health initiative, a program geared toward improving the health of underserved populations through the use of mobile phones.

One study, led by Joshua Cohen, M.D., professor of Medicine in the Division of Endocrinology, and Neal Sikka, M.D., assistant professor of Emergency Medicine, will examine the effectiveness of text messaging in reducing emergency room (ER) visits by people with diabetes. The team will text diabetes information to subjects, who will report on their disease management. Via text, subjects will also be able to get information about follow-up appointments. The hope is that by improving patient education, people with diabetes can improve their self-care and help prevent the type of health concerns that lead to ER visits.

The other study, led by co-investigators Samir Patel, M.D., associate professor of Medicine in the Division of Renal Diseases and Hypertension, and Katz, will be a randomized, controlled trial of a cell phone application for patients with diabetes and hypertension. Patients will be able to monitor their blood glucose and blood pressure, and share that data with primary care providers. Researchers aim to create a sustainable care model centered on the cell phone application. ■



THE ANSWER IS



**NITRIC OXIDE DISCOVERIES UNRAVEL PATHWAYS
LEADING FERID MURAD TO THE NOBEL PRIZE — AND GW**

The question had puzzled doctors for more than 100 years: How did nitroglycerin — the same explosive compound Alfred Nobel famously tamed in his invention of dynamite — work as a therapeutic? They knew it flushed blood into the heart, alleviating painful conditions like angina, but how? That was the million-dollar question.

For Ferid Murad, M.D., Ph.D., now University Professor and professor of Biochemistry and Molecular Biology in the GW School of Medicine and Health Sciences (SMHS), the answer struck like a lightning bolt. He was a young faculty member at the University of Virginia (UVA) when he realized nitroglycerin and other blood vessel-widening drugs (which he dubbed nitrovasodilators) were being converted to nitric oxide (NO) in the body.



“That was heresy,” says Murad. After all, NO was best known as a toxic gas and environmental pollutant — not as a molecule with beneficial biological functions. But when Murad and his team linked lab-generated NO with a family of enzymes called guanylate cyclase (GC), they successfully mimicked the lock-and-key combination nitroglycerin uses to make blood vessels relax, expand, and encourage blood flow.

“We did that experiment on Dec. 2, 1976 — I’ll never forget it,” he says. “It was one of those ‘eureka’ moments.” And it wouldn’t be the last. Two years later, Murad postulated that nitrovasodilators work not by being converted to NO in the body, but by prompting smooth muscle cells to create the gas themselves. NO, he thought, was behaving as a messenger molecule — one uniquely capable of both carrying messages between cells (i.e., a first messenger) and entering the cells to regulate their functions (i.e., a second messenger). And though it took years to prove it, and even longer for the scientific community to accept it, Murad was right.

AN INTELLECTUAL BRIDGE

The memory of a molecule once outcast seems distant to Murad now — 35 years since the discovery of NO’s first biological effects and 13 since he and two colleagues won the Nobel Prize in Physiology or Medicine for it. Today, the study of NO is one of the most popular in biology, generating about 130,000 academic papers each year. Murad estimates the molecule has influenced breakthroughs in cardiovascular disease, cancer, and arthritis, and — Murad proudly reports — formed the basis for Viagra. “It’s just remarkable what it can do,” he says. “If you were asked: Does it do this? Does it do that? Chances are, the answer is ‘yes.’”

The same could be said of Murad, who has served as chief of Medicine at Palo Alto Veterans Hospital, chair of Medicine at Stanford University, and most recently director emeritus of the Institute of Molecular Medicine at the University of Texas Health Science Center at Houston. He’s founded several biotechnology companies, served as an advisor to city and government leaders on technology development, and lectured around the world. In June, he became the namesake of a hospital in Macedonia — the same hospital where his Albanian father sold candy as a teenager.

Through it all, Murad’s philosophy has remained the same. “I like to chase problems,” he says. “You have to do whatever it takes to answer the most important questions.”

Most recently, “whatever it takes” comes in the form of GW, where, as University Professor — the institution’s highest academic title — Murad teaches an undergraduate course, mentors medical and postdoctoral students, and leads a lab program in SMHS’s Department of Biochemistry and Molecular Biology, where he is a full professor. “Something significant is happening at GW, and it’s fun to be a part of it,” he says.

And according to University and SMHS leadership, Murad’s not just a part of it — he’s driving it. “Dr. Murad’s presence on our faculty immediately catalyzes and elevates our strategic efforts in advancing scientific discovery, educating the next generation of physicians and scientists, and improving the health and lives of the people we treat,” says Jeff Akman, M.D. ’81, G.M.E. ’85, interim vice provost for Health Affairs and dean of SMHS. “In many ways, he is an intellectual bridge between the University and SMHS.”

Rakesh Kumar, Ph.D., professor and Catharine Birch & William McCormick Endowed Chair of the Department of Biochemistry and Molecular Biology, and long-term collaborator of Murad’s, agrees. “Dr. Murad is a compassionate colleague and mentor whose infectious intellectual curiosity is sparking a fresh spirit of creativity on our campus.”

ONE PERVERSIVE PATHWAY, THREE IMPORTANT PROJECTS

When Murad joined the GW faculty in April, he unpacked three nagging questions: Can deadly tumors be treated with minimal side effects? How can stem cells be manipulated to grow into certain tissue types? Is there a cheap and portable way to save the millions of lives lost each year to diarrhea? While ostensibly quite distinct, each project stems from the cellular signaling pathway that begins with NO and ends with cyclic guanosine monophosphate (cGMP), a second messenger that is released inside a cell after GC is activated by NO (i.e., the lock and key).

“NO and cGMP reprogram genes that influence the differentiation and proliferation of cells,” explains Murad of project number one. “Because some of these effects are related to cancer proliferation, interrupting that process can be a novel way to treat cancers.” It’s a thought that’s been simmering in Murad’s mind since the 1970s, when his work with liver and renal tumor models first indicated a relationship between cGMP and tumor proliferation. After several years exploring this relationship — and even demonstrating that cGMP excretion in the urine of rats correlated with the size of their tumors — Murad and his colleagues tabled the project because their ambitions exceeded the day’s technologies.

In recent years, Murad has returned to the pursuit, this time focusing on glioblastoma, a “very aggressive, nasty” type of brain cancer that Murad estimates kills up to 80 percent of its victims in less than three years. His goal, in broad terms, is to enhance the expression of a certain subtype, or isoform, of the receptor GC and its product cGMP so that the message “grow” cannot be received by the tumor cells. So far, Murad and his team of investigators have successfully quadrupled the life span of mice injected with manipulated tumor cells. “Can we do that with humans? I don’t know, but I hope so,” he says.

Murad’s second project, regenerative therapy, goes hand in hand with his first. Like cancer cells, embryonic stem cells are

proliferating and differentiating systems whose growth and change is dependent upon the messages they receive. If Murad can understand whether and how much NO and cGMP dictate the messages that tell embryonic stem cells what kind of tissue to become, he might also be able to swoop in and tell them to be something else.

So far, Murad and his colleagues have coaxed cell lines toward futures as hearts and brains. But, of course, cGMP and NO are only part of the story, Murad cautions. “It’s going to be a complicated cocktail of goodies you put in your cultures to become this or that, and I think part of the story will be cGMP or NO.”

In 20 or 30 years, he predicts, the “organ transplant program won’t be necessary anymore. Wouldn’t that be wonderful?”

The third research goal also dates back to the 1970s, when Murad helped a colleague at UVA reveal that a bacterial toxin in Bangladesh was causing diarrhea by increasing cGMP production, similar to how cholera causes diarrhea by increasing the production of another second messenger, cyclic adenosine monophosphate (cAMP). The pair demonstrated that the only isoform of GC found in the intestinal mucosa, particulate GC, is the receptor for the bacteria’s heat-stable strain. When that strain interacts with the particulate GC, the lock-and-key match unleashes cGMP and prompts diarrhea — an illness responsible for the death of about 2 million children worldwide each year.

Ever since, Murad has been on the hunt for the perfect compound that plugs the lock between the toxin and the particulate GC receptor. He and colleagues have already found one particularly promising molecule that works with both the bacterial toxin and the cholera toxin. And while there is still “homework to do” on the compound, including clinical trials for toxicity, Murad is optimistic that a marketable therapeutic will be developed in his lifetime. “If we can make an impact on cancer, if we can make an impact on stem cells, and if we can figure out a way to treat infectious diarrhea in third-world countries, I will turn up my toes and feel blessed,” he says.

A PRODIGY OF NATURE AND NURTURE

Even as a “youngster,” Murad knew he would go to medical school. He had always been smart — remaining at the top of his class from grade school through high school, despite rarely doing homework — but his desire for higher education was attributable to nurture as it was to nature, he says. Raised in a small town in Indiana, Murad learned the value of hard work and education from his restaurant-owner parents, neither of whom had completed elementary school. “I knew that when I grew up, I wanted to accomplish more than my parents,” he recalls. The other important component of success, says Murad, “is identifying that teacher or professor who will get you excited about something, guide you, and keep you going.”

When Murad joined the GW faculty in April, he unpacked three nagging questions: Can deadly tumors be treated with minimal side effects? How can stem cells be manipulated to grow into certain tissue types? Is there a cheap and portable way to save the millions of lives lost each year to diarrhea?

For him, there were many — high school teachers who were regulars at his parents’ restaurant, professors during his undergraduate years at DePauw University, doctors in residency at Massachusetts General Hospital, and scientists at his fellowship at the National Institutes of Health. But it was while achieving one of the nation’s first dual M.D./Ph.D. degrees at Case Western Reserve University that Murad met his two most influential mentors: Earl Sutherland Jr., M.D., chair of the Department of Pharmacology, and Theodore Rall, M.D., a young faculty member in the same lab.

Murad joined their lab shortly after it had discovered cAMP as the first intercellular second messenger — a finding for which Sutherland later won a Nobel Prize. “What a wonderful and exciting time ... watching a new area of biology develop and actively participating in the work,” writes Murad on the Nobel Foundation website. He has studied cellular signaling ever since.

Murad has also embraced the opposite side of the mentorship dyad, training about 150 medical students and fellows in his lab over the course of his career. Many have become department chairs, several are company presidents, and one is the president of a Japanese university, but none have won the Nobel Prize ... yet. “One of my students has to win the prize because I don’t want this lineage in cellular communication disrupted in any way,” says Murad, half-joking and alluding to the three-generation trend that began with Sutherland’s mentor, Carl Corey, who won the prize in 1947 for describing how the body uses glycogen for energy. “One of my goals is to identify that next generation here at GW.” But even more than the Nobel trait, Murad hopes he can pass down his passion for research and penchant for problem solving. After all, if conducting one revolutionary experiment was his only goal, Murad could have stopped that winter night in 1976. But “quitting while you’re ahead” is an idea that’s never made much sense to Murad. “I hope I never retire,” he says. “I really love what I do — solving problems. How long I can go, I don’t know. But I am willing to find out.” ■

*“Order and simplification are the first steps
toward the mastery of a subject.”*

— Thomas Mann

Deconstructing a Complex Disorder

A GW researcher applies order and simplification as a new step toward understanding autism

ON A WEDNESDAY LAST APRIL, Valerie Hu, Ph.D., professor of Biochemistry and Molecular Biology at GW’s School of Medicine and Health Sciences (SMHS), eagerly anticipated the release of an autism spectrum disorder (ASD) study that she authored and that appeared in the online science journal *PLoS One*. The study added to an already large body of literature linking specific genes to autism, but Hu emphasized that her genome-wide analysis provided “a new twist.”

Hu’s approach addressed the immense variability of autism, a disorder that affects one out of 110 American children, according to the Centers for Disease Control and Prevention. Autism’s severity and symptoms vary drastically: They include language deficiency, repetitive behaviors, and restricted social interest; some individuals also exhibit epilepsy, sleep disturbance, weak muscle tone, and immune system dysfunction. “When I talk to parents about studying autism,” Hu says, “I tell them it’s like digging your hand into

a bowl of mixed fruit and picking out one specific thing.”

Experts agree that autism is a multi-gene disorder, and each gene inflicts a small effect that is compounded by environmental factors. The unique jumble of symptoms emerges in almost a case-by-case basis. “This heterogeneity in symptoms, severity, etc., is the major problem,” Hu explains. “Most scientists and geneticists recognize this, but little has been done to tease the heterogeneity apart. The result is increased ‘noise’ in the biological or genetic data.”

THE BREAKDOWN

Hu’s recent study seeks to squelch that noise and gain a clearer signal by systematically grouping individuals with autism into subgroups according to similarity of severity scores from the Autism Diagnostic Interview–Revised (ADI-R), a behavioral diagnostic assessment. These scores,



T A G

G A T T G

T A A C
C T A

T A C C
A G C G T A C C

A G A
C T A C

C G A T T G A G C
C A T

T C
A C

along with the corresponding individual's genetic data, were obtained from a large study led by faculty at the Children's Hospital of Philadelphia.

Hu clustered nearly 3,000 individuals into four distinguishable ASD groups that ranged in severity from mild to severely language impaired, with the hope of determining whether the behavioral subtypes could be associated with different genetic variations.

This study identified 18 novel genetic variants or single nucleotide polymorphisms (SNPs) that were associated with one or more subgroups of autism. Interestingly, the SNPs were in regions of DNA that didn't code for proteins, suggesting that they may instead regulate gene expression. The value of dividing individuals into subgroups for the genetic analyses was underscored by the fact that no significant SNPs were identified when the cases were combined into a single group (Hu's "bowl of mixed fruit"). "To associate genotype with behavioral phenotype is what you want for diagnostics," Hu says. "You want to pick out not just risk for autism, but also risk for a type of autism."

Anthony-Samuel LaMantia, Ph.D., professor of Pharmacology and Physiology and director of GW's new Institute for Neuroscience, stresses the importance of taking into account autism's variability when connecting observable deficits to their underlying genome. "It's not as simple as making a clinical diagnosis of autism and then finding a gene," he says. "There's a necessity in identifying each behavioral realm and associating it with a number of genomic changes. These sorts of groupings will help with that."

PATTERNS EMERGE

The success of this genome-wide genetic analysis in identifying subtype-dependent SNPs supports this subtyping strategy, which Hu and her colleagues had previously applied to genome-wide gene expression analyses. In a 2009 study that analyzed more than 40,000 RNA transcripts per sample, both overlapping and unique genes were revealed among three of the subtypes examined.

Among the genes shared between the severe and mild subtypes were those linked to cell death, inflammation, embryonic development, memory, learning, and muscle tone. Unique to the more severe ASD group were genes associated with responses to painful and normal stimuli, muscle rigidity, epilepsy, and circadian rhythm.

Altogether, Hu views her findings as necessary steps toward targeted therapies in autism. "In order to develop a personalized medicine approach to treating a complex disorder," she says, "you need to define what the defect is."

IT'S PERSONAL

With good reason, Hu decided in 2004 to pivot her research

acumen toward autism. "I have a son who's affected. That's my driving motivation," she explains. As a parent and a scientist, she is all too aware of how the diagnosis of autism relies solely on behavioral assessments, since reliable biomarkers have yet to become a reality. "Even though autism is said to be highly heritable, there's still no genetic or molecular marker," she says. "So one of the goals of our study was biomarker identification."

With regard to the diagnostic landscape of autism, Rakesh Kumar, Ph.D., professor and the Catharine Birch & William McCormick Endowed Chair of the Department of Biochemistry and Molecular Biology at SMHS, couldn't agree more about the need for a quantitative tool. "There is no yardstick to measure autism against," he says. "There is a lot of subjectivity that comes with complex disorders, and they cannot be assigned to one single gene product. This is where Dr. Hu's work will be able to fill in the niche."

Absent a biological understanding of autism, treatment options are limited and vulnerable to conjecture. "Right now they're just throwing all these different psychotropic drugs at autistic kids," Hu observes. "My son has been prescribed more than 20 different drugs. None of the drugs have worked, and many have had intolerable side effects, so now he's not on anything."

Ideally, making a diagnosis based on peripheral biomarkers stems from an understanding of how the detected changes relate to the nervous system, LaMantia points out. "The diagnostic strategy requires asking whether peripheral change in a non-neuronal cell type represents something significant in the nervous system," he adds.

A FRAMEWORK FOR THE BIG PICTURE

Making sense of autism means unraveling its many causes and seeing how they relate. Hu likes to construe it as a multilevel pyramid with the base representing the observable symptoms, or phenotype. The next level is the gene expression profile, above which is the genetic hardware that you're born with as well as the ways in which that hardware is interpreted, or epigenetics. At the top are the environmental and biological triggers, such as hormones and toxins. "Even though autism is highly genetic," Hu notes, "the question is what environmental factors impact the genes. That's the big picture."

Because genetically identical twins who differ in their diagnosis for autism show different gene expression profiles, Hu thought it was a good idea to look at DNA methylation, an epigenetic process whereby methyl groups attach to DNA to dampen gene expression.

In a 2010 study, Hu and Anh Thu Nguyen, then a graduate student working in Hu's lab, identified the retinoic acid-related orphan receptor alpha gene, or *RORA*, as a gene that's altered by methylation in samples from autistic individuals. *RORA* mutation has been linked to



Valerie Hu, Ph.D.

“Even though autism is said to be highly heritable, there’s still no genetic or molecular marker, so one of the goals of our study was biomarker identification.”

an abnormal cerebellum (the region of the brain that’s responsible for coordination and muscle tone) and deficiency in a type of neuronal cell (Purkinje), which has been the earliest and most consistent brain abnormality observed in autism.

This February, Hu and her collaborators — Tewarit Sarachana, a GW Institute for Biomedical Sciences Ph.D. candidate, Minyi Xu, a master’s degree student in Biochemistry who now serves as a research assistant under Hu; and Ray-Chang Wu, Ph.D., assistant professor of Biochemistry and Molecular Biology — reported that *RORA* is regulated in opposite directions by male and female sex hormones (male hormones repress it), and also that *RORA* regulates aromatase, an enzyme that converts testosterone to estrogen. The study further showed that both *RORA* and aromatase levels are reduced in the brain tissues of autistic individuals, thus linking observations initially made with non-neuronal tissues to changes in the brain. These findings are significant because they provide an explanation for the higher amount of testosterone often seen in children with autism, which some researchers blame for the 4:1 sex difference between boys and girls with the disorder.

“I think females are more protected because estrogen can not only elevate *RORA* expression, but also compensate for a deficiency in *RORA* by activating the estrogen receptor which controls some of the same genes that are regulated by *RORA*,” Hu says. “That’s what I think is the beauty of the work with sex hormones. It really helps

explain the higher levels of testosterone, as well as the sex bias in autism.”

EYES ON THE PRIZE, FEET ON THE GROUND

Hu explains her work like a driven detective searching for clues. Kumar describes her as a principal investigator who single-handedly put GW on the map for autism research. “Her work,” he says, “will collectively help to further refine the autistic diagnostic kit based on objective, quantitative tests.”

Hu hopes her work will one day spur better diagnosis and treatment of autism. “Sometimes when you think too far ahead, it’s so complex,” she reflects. “You wonder whether you’ll get to a point where you can really help.”

LaMantia agrees that solving the riddle of autism will be a piecemeal, formidable challenge. “Autism research is moving forward right now,” LaMantia observes, “but it is going to be complicated, and it will move forward ever so slowly.”

It’s understandable that parents of autistic children would find such an outlook sobering. After Hu spoke about autism at a recent conference in Utah, a parent asked if giving estrogen to her affected son would alleviate symptoms. As a parent and a scientific expert, Hu could relate to the eagerness. But she framed her answer pragmatically: “You have to let research sort that out.”

Taped to Hu’s computer monitor is a fortune cookie message: “Your present plans are going to succeed.” It’s a sage reminder for any investigator who has a hunch he or she is on the right track. ■

From Principle to Practice

CARDIAC INTERVENTIONALIST RAMESH MAZHARI, M.D., TRANSLATES SCIENTIFIC INNOVATION INTO EFFECTIVE CLINICAL PRACTICE

The concept of “flow” is a defining characteristic for Ramesh Mazhari. As an interventional cardiologist, she is dedicated to restoring and improving patient blood flow to the heart. As a researcher, she has transitioned almost effortlessly from one new idea to the next. And, with guidance from mentors along the way, Mazhari hopes to make it possible for basic science discoveries to move swiftly from concept to patient care. ✱ In the clinic that treats vessel blockages, Mazhari, M.D., G.M.E. '02, G.M.E. '05, assistant professor of Medicine in the Division of Cardiology at GW's School of Medicine and Health Sciences (SMHS), has earned a reputation as an expert in the use of transradial catheterization on patients who experience a blockage of blood flow to their hearts. In the laboratory, pursuing stem cell research to restore heart muscle function, she is exploring the molecular level of information flow. She is trying to determine the pathways that prompt the body to cue — or crush — the cell growth needed to repair a damaged heart. She hopes one day to harness that signaling system to devise regenerative cardiac treatments. And as a master's degree student in SMHS's first class of translational medicine specialists, Mazhari is moving to the next big paradigm in medicine.

Cardiac Interventionalist Ramesh Mazhari, M.D., G.M.E. '02, G.M.E. '05, prepares to insert a catheter into the radial artery of a patient.



INSIGHT AND ACTION

Mazhari, who completed her residency in internal medicine at GW in 2002 as well as a fellowship in cardiac intervention at GW in 2005, returned to SMHS three years later as a member of the Cardiac Catheterization Laboratory at GW Hospital. With encouragement from her mentor, and now colleague, Jonathan Reiner, M.D., professor of Medicine and director of GW's catheterization lab, Mazhari pursued training in transradial access. The specialized cardiac catheterization procedure offers safer access to the heart through the radial artery in the patient's wrist rather than taking the traditional approach through the femoral artery.

The procedure was developed about 20 years ago in Europe. Although only about 5 percent of cases in the United States use transradial access, it is now the preferred method in more than 50 percent of cases in Europe, Canada, and Japan. The U.S. standard relies on the larger, straighter femoral artery in the groin as a route to the heart. Both approaches enable physicians to diagnose coronary blockages, and, where possible, restore blood flow by threading a stent through the catheter to prop open the vessel. The femoral procedure, however, presents bleeding risks and significantly greater discomfort for the patient due to the artery's location deep within the thigh muscle. Transradial access is ostensibly more difficult because the radial artery is smaller than the femoral artery, and the route to the heart is less direct (the physician has to guide the catheter up through the patient's arm around the shoulder to reach the heart). Nonetheless, the procedure is safer because it reduces the risk of bleeding, and it provides a faster recovery time; patients sometimes go home on the same day as the procedure.

As is typical of Mazhari's style, action followed the insights she gained from her catheterization training. "After three or four cases, I was convinced that transradial access

was the better procedure for a cardiac intervention because it's better for the patient," she says.

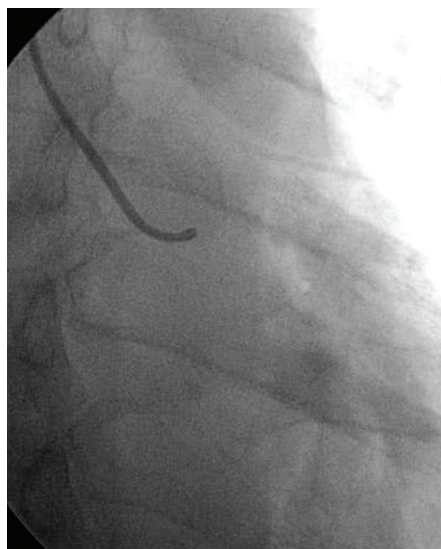
Mazhari suggested to Reiner that GW expand its use of transradial access, and after some careful evaluation he adopted his protégé's enthusiasm for the technique. The results were so positive that radial access soon became the lab's preferred approach.

"It's a much more patient-centered approach," says Reiner. "While the procedure often takes several months for physicians to really learn, once they have the expertise, they can perform it just as quickly, more safely, and less expensively compared with the more common procedure of going through the femoral artery."

Most catheterization labs in the United States opt for the femoral procedure as a first option and switch to the radial artery only if there is potential for complications with the traditional approach, according to Reiner. GW turned that scenario on its head. "Today at GW Hospital, we perform almost 90 percent of catheterizations through the wrist," he says. "The procedural outcomes are equivalent, and patients prefer it."

Reiner beams with added satisfaction that the switch to transradial access was born of homegrown talent. "Ramesh is someone I trained," recalls Reiner, "but she has changed my practice and influenced a generation of our fellows at GW."

As a result of the transition, GW has become a wellspring for training in the transradial technique. "Our fellows come out of their years with us having performed hundreds of cases, and they really become experts at it," says Reiner. Through its fellowship programs, GW provides specialized training in transradial access for two interventionalists and eight general cardiology fellows annually. In addition, three or four established physicians travel to GW each month to learn the technique.



"Ramesh is someone I trained, but she has changed my practice and influenced a generation of our fellows at GW."

— JONATHAN REINER, M.D.,
DIRECTOR OF GW'S
CATHETERIZATION LAB

Connect. Flow. Transform. It's an algorithm for speeding the current of innovation to patients. Mazhari attributes her inspiration in exploring new channels of care to the many influential mentors who have guided her along her relatively young career as a physician.

"A great mentor is not just a doctor who teaches you how to perform a procedure the way he or she does, or how to understand a condition based only on their own experience," Mazhari explains. "A great mentor teaches you to be imaginative, to think differently, and to continue to learn as much as you can."

OF PIG LABS AND PRACTICE CHANGE

Mazhari's drive for "different and better" was instilled early in her medical career during a fellowship at Boston's Brigham and Women's Hospital. Developing a research project taught her the fine-grained details of how to build an operational foundation for research, including managing stakeholder input, policy implications, grant requirements, and reporting mandates. Right away Mazhari knew she wanted a career in both research and patient care. At the time, however, translational medicine — quickly moving advances in research from the bench to better clinical care at the bedside — was only beginning to take shape at a few academic medical centers.

Again, mentoring made the difference for Mazhari. Working on another fellowship under Joshua Hare, M.D., who was a pioneer in the use of stem cells for repairing damaged heart muscle and was then at Johns Hopkins University, Mazhari realized that her dual expertise in research and patient care was clinically relevant. During the year-long fellowship, she found herself in the lab as a basic science researcher investigating stem cells and their impact on the heart physiology of pigs. Pigs are routinely used in cardiac research because their heart anatomy is similar in size, structure, and function to that of humans. Mazhari's task during the project served as a counterpoint to her current role as an interventional cardiologist. "Instead of clearing vessels to restore blood flow, I was trying to close vessels to induce a heart attack in the pigs," she explains. "Then we would inject cardiac stem cells to see if there was any therapeutic effect on the heart. In doing a little bit of everything — basic science research and clinical care — I really found my calling."

CREATIVE COLLABORATIONS

Mazhari kept seeking a link between science and patient care. Upon her return to GW in 2008, she found a fertile environment in which to integrate her understanding of clinical care and her interest in hard science. The combination of freedom and direction offered by mentors such as Reiner, Timothy McCaffrey, Ph.D., professor of Biochemistry and

Molecular Biology, and Eric Hoffman, Ph.D., professor of Pediatrics at GW's SMHS and Children's National Medical Center, enabled Mazhari to reach beyond convention.

This spring she joined one of the nation's few translational medicine degree programs — and the only one in the Washington, D.C., area. Mazhari is among GW's inaugural class of 15 M.D.s and Ph.D.s training to bridge gaps in care and build new platforms for improved health by quickly translating advances in basic science into new clinical treatments for patients. The degree program is part of a partnership between GW and Children's National Medical Center thanks to a National Institutes of Health grant — the prestigious Clinical and Translational Science Award.

Joseph Bocchino, Ed.D., M.B.A., assistant professor and chair of SMHS's Department of Clinical Research and Leadership, directs GW's new degree program. He believes translational medicine exerts new demands on leaders to evolve beyond the rapidly declining model of care marked by the heroic surgeon, the lone genius in the lab, the solo clinician.

"This emerging domain is all about a social-networking approach to problem solving," Bocchino explains. "It's done largely through multidisciplinary teams, not isolated or loosely affiliated individuals. So the process requires a new leadership style. Defining and developing this new leadership style is one of the essential educational pieces of our program."

He adds that traditional research programs train people in a deep, but narrow, scope of interest. "In this new program, the strategy is to help people develop a broader base of experience across the continuum, from basic science, to clinical research, to matters of health policy."

Mazhari explains, "I was attracted to the opportunity to enter GW's translational medicine degree because I had first-hand experience both in basic heart research and in applying new knowledge to patient care."

MAKING THE CONNECTION TO BETTER CARE

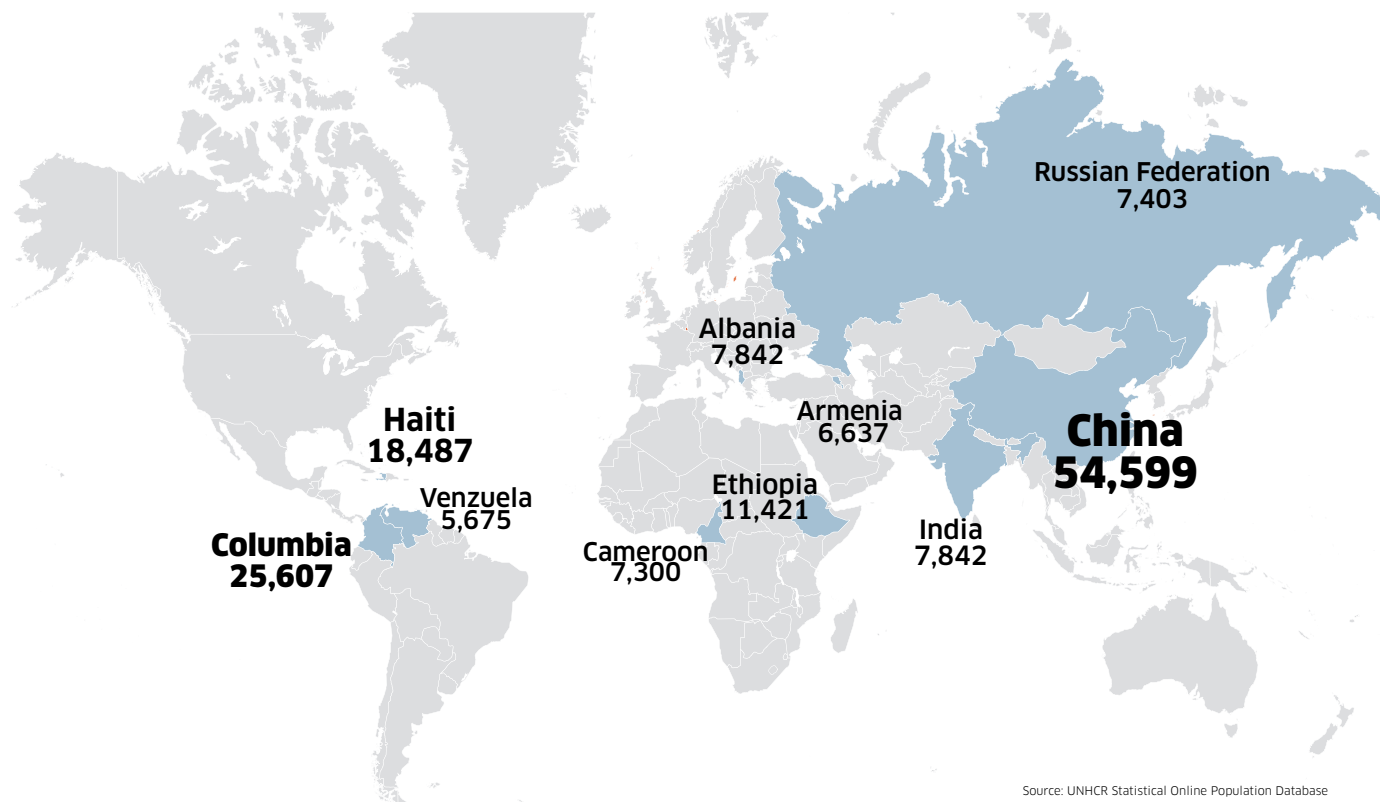
Translational medicine is changing how scientific research is conducted and health care is delivered in the U.S. because it's helping to overcome medicine's past problems: A system fragmented between basic laboratory research, clinical care of patients, and policy support for best-practice methods and therapies.

"In health care right now, there is a huge gap between what we know and what we deliver," says Mazhari. "My job as a clinician going through this program is to connect those two worlds through translational research. My goal is to take the rapidly growing basic science research, and use those techniques to try to answer very relevant clinical questions. It's exciting to have this opportunity because in medicine, there's so much more we can do for patients when we can make this connection."

Connect. Flow. Transform. ■

Total Number of Refugees by Country Living in the United States 2010

Top 10 countries



Prescriptions for Sanctuary

FOR REFUGEES, MEDICAL EVALUATIONS BY GW CLINICIANS CAN MEAN THE DIFFERENCE BETWEEN LIFE AND DEATH

By Anna Miller

A lot of things seem to walk away from Katalin Roth's office, which, she admits, is "due for a clean." But a simple greeting card isn't one of them. She locates it swiftly, plucks it off the bulletin board, and reads it aloud.

"Thank you very much for everything you have done," it says. "You saved my life. As a Burmese, I worship you every day for saving my life."

"Isn't that amazing?" Roth marvels. "It's the most amazing card I've ever received."

Roth, M.D., J.D., is the division director of Geriatrics and Palliative Medicine at the GW Medical Faculty Associates and an associate professor in the Department of Internal Medicine at the GW School of Medicine and Health Sciences (SMHS). As a doctor, she is in the business of saving lives. As a volunteer medical evaluator of asylum seekers, she helps refugees like the card's author — a journalist who fled a country where her profession is a crime — create new lives. Her two roles are not that different. After all, as Roth wrote in a paper published in the *Journal of Pain and Symptom Management*,

"helping a refugee achieve legal status in this free country is really to save a life."

THE MEANING OF ASYLUM

The word "asylum" literally means "sanctuary." Legally, it is the right to remain in the United States despite an expired visa or illegal entry, and the ability to eventually apply for U.S. citizenship. Symbolically, it means freedom. No matter how it's spelled, achieving asylum isn't easy.

To earn it, asylum seekers (also called asylees) must prove refugee status — they must show that past persecution or a well-founded fear of future persecution prevents them from returning to their home countries, and that such persecution is based on race, religion, nationality, political opinion, or membership in a particular social group. Because asylees often lack documentation, testimony from a medical evaluator like Roth can be the difference between life and death.

Roth conducts her evaluations at Washington, D.C.'s Bread for the City, a nonprofit clinic that provides adminis-



Katalin Roth, M.D., J.D.

trative support for volunteer physicians, among other services to the community. She takes a medical history, conducts a physical examination, and asks a lot of questions — about the abuse, the escape, detention conditions, and methods of torture. She asks about life “before,” and life “after.”

The most important part of Roth’s job is the listening. It’s also the hardest.

Stories of rape, beatings, starvation, and burning; tales of amputated fingers, crushed legs, stretched arms, and sliced skin fill her asylum interviews. She has documented genital mutilation, chronic fungal skin infections, and severe arthritis.

Though not all scars are visible, the stories are chilling. They are acts of torture not accidents. They are deliberate and cruel, and, perhaps worst of all, they represent only a fraction of the tortures inflicted daily in more than half the world’s countries. Those who make it to Roth are the lucky ones.

“You learn a lot about how terrible people can be to one another,” says Roth, who has examined people from the Ukraine, Georgia, Pakistan, Ethiopia, Albania, Sudan, Guatemala, and more. While in the clinic, she remains sympathetic but detached. “Later, in the privacy of my home,” she confesses, “I have shed tears.”

But her tears are fleeting. The people are inspiring, interesting, and often very brave, she says. “They have the courage of their political convictions and stand up to governments.”

A PHYSICIAN ADVOCATE

Roth’s first patient came to her by way of her colleague Julia Frank, M.D., professor of Psychiatry and Behavioral Science in SMHS, who had been performing psychiatric evaluations of asylum seekers for about five years. Annie was a “thin, frightened young woman” from Cameroon who had been arrested and abused in prison presumably because her boyfriend was a political activist. With the help of Frank and

Roth’s documentation, Annie was eventually granted asylum and is now a home health aide, a wife, and a mother.

“While working with Annie, I discovered a new dimension of myself as a physician,” says Roth. “I had been a physician-advocate before ... but in this work, I could help individuals address international injustice.”

Roth also shares a personal connection with the refugees. Despite having survived persecution as Jews during World War II, Roth’s family fled Hungary when she was three months old because her father, a small business owner, was a capitalist in a communist regime.

“I grew up hearing the stories of our escape, about the bullets whizzing by as the truck driver drove through a checkpoint, and the fellow passenger who was killed in the escape,” Roth recalls. “So I know firsthand ... that immigration is a choice one makes when one has no other choices.”

WE DON’T ASK

Roth’s experiences with refugees are valuable in the clinic, where she argues that doctors know too little about their patients. “We don’t ask the veterans what happened in the war, whether it’s World War II, Korea, or Vietnam. We don’t ask foreign-born patients what kind of turmoil they went through. And so we miss out on knowing our patients.”

Physicians also risk missed diagnoses, she says. Depression, stomachaches, headaches, and eczema can all be related to past traumatic experiences.

What’s more, “medical care itself can be traumatic to people who have been traumatized,” according to Frank. Clinic rooms can mirror prison cells, clinicians’ questions can echo interrogations, and medical tools can resemble instruments of torture.

It’s an idea illustrated by one of Roth’s patients, a 70-year-old Vietnamese-American man named Nguyen who was crying as he recovered from lung surgery. He told Roth he was not in pain — as long as he remained still. And yet, lying still was almost worse: The position reminded him of the torture he had endured as an anticommunist in South Vietnam, where he was confined to a cage, unable to stand for six months.

“Nguyen helped me understand how helplessness can be re-created in the medical setting and how easily long-buried memories of torture can be reawakened in illness,” says Roth.

Back in her office, before reading the greeting card, Roth received a phone call about a patient in her geriatric clinic who died. She empathized with the caller, admiring the deceased and wishing the family her best. With the click of the phone and a mark on her chart, another patient was lost forever.

As a physician, Roth is also in the business of watching lives pass.

“It’s sort of an antidote, I guess,” she says as she pins the card back on the bulletin board. In Roth’s world, for each life lost, another is saved. ■



Orthopedic Surgeon Ken Akizuki, M.D. '93, keeps the San Francisco Giants standing tall.

There When Giants Fall

Orthopedic Surgeon Ken Akizuki, M.D. '93, Works to Keep Major Leaguers on Their Feet and Rounding the Bases

By Gary Libman

As he anticipated the final out in the World Series last November, Ken Akizuki, M.D. '93, ran from the San Francisco Giants' clubhouse to the end of a tunnel behind the team's dugout. When the Giants won, the team's orthopedic surgeon followed the hugging, screaming, jumping players onto the field to celebrate.

The next day, Akizuki rode in the team's victory parade through downtown San Francisco. A sea of confetti coated a roaring sidewalk crowd estimated at more than 1 million. Later, the Giants awarded Akizuki the same World Series ring the players and coaches received.

"I wear the ring every day," Akizuki says. "And every day my patients want to wear it and take a picture with it. I think they are more interested in my ring than they are in me." Celebrating the World Series championship with the team and

owning a World Series ring are just two among many fantasy "perks" Akizuki receives as the Giants' orthopedic surgeon.

He doesn't have to search to uncover the path that led him to this moment. For Akizuki, it began during his final year as a student at GW's School of Medicine and Health Sciences (SMHS), as he prepared to pick a residency.

"It was tough to choose a specialty, because as a student you wanted to emulate the professors you liked and looked up to," recalls Akizuki. "But the seed to go into orthopedics was probably implanted in my fourth year of medical school. My GW professors helped me get a great residency in general surgery at Los Angeles County Harbor-UCLA Medical Center, and when I went into the residency I felt that my education was as good as what was provided by any medical school in the country."

He adds, “I can’t tell you how many other professors and people touched my life. My classmates and faculty were tremendous. The impact of the mentors and other people I met was invaluable. I was helped a great deal by a couple of orthopedic residents: Ken Yamaguchi, now the Sam and Marilyn Fox Distinguished Professor of Orthopedic Surgery at Washington University School of Medicine in St. Louis, and Ammar Bafi, who was the chief resident in General Surgery and is now a cardiovascular surgeon at Washington Hospital Center.”

In his role with the Giants, Akizuki works at nearly all of the team’s 81 home games and spends another three weeks with the team during spring training. That’s in addition to his full-time practice.

Akizuki works the games not just because he’s been a Giants fan since childhood, and not just because in the clubhouse he regularly encounters Major League Baseball royalty, such as former Giant Willie Mays or such current players as two-time Cy Young Award winner Tim Lincecum. He’s at the clubhouse because he feels responsible to the players.

“Baseball’s a funny game,” says Akizuki, 45. “The majority of injuries are a result of repetitive stress, and the more you are around, the more you get to see the evolution of injury and you get to know the athlete and they get to see you. The more you’re around and the better the players know you, the more they trust you.”

Akizuki starts each season with the Giants in late February at spring training in Scottsdale, Ariz. He and other team doctors provide physicals for the Giants’ 180 to 200 major and minor league players and treat frequent pre-season injuries.

When the season begins in early April, he frequently works 15-hour days. On nights when the Giants play at home, he sees private patients from 7:30 a.m. to 5:30 p.m. and plants himself in the Giants’ locker room from 6 p.m. to 11 p.m.

When he arrives at the locker room, “There’s usually a list of players I need to see, and I prioritize those,” he says. “Some may be playing that night. I’ll usually meet with the player and training staff and make decisions. Often the player will have taken batting and infield practice. Afterward, we’ll assess how they’re doing. It’s a long season and a grind. The players are always banged up a little, some more than others, and you’ve got to make decisions on a day-to-day basis.

“I try to multitask, doing paperwork from my practice during the game,” Akizuki continues. “I’m pretty intent on

watching the game on a monitor in the clubhouse. A lot of players who are preparing to play in the later innings leave the dugout and come into the clubhouse. They have their rituals to get ready; like relief pitchers who come in and get stretched out. Guys who’ve been injured for a long time come in to rehab, and I talk to them. We watch the game together.”

He adds, “The hardest thing about the job is that the training staff and I have to make a lot of tough decisions in terms of injuries. People always want to know how quickly we can get these guys back on the field; our job is to do so safely and do it right.”

Among those Akizuki has successfully treated were two players struck in the head at separate times by a batted ball, one on the mound and the other in the dugout. But common complaints, especially among pitchers, include labral tears, impingements, tendinitis in the shoulder, and ulna collateral ligament problems in the elbow.

As a pitcher-infielder at Branham High School in San Jose, Akizuki personally avoided these injuries. Unfortunately, he adds, the injuries, once confined to professionals, are becoming more common among amateur athletes.

“The most concerning thing I see,” he says, “especially in youth baseball, is that kids are getting the same injuries in the shoulders and elbows at a much younger age. At 37, a guy has had a major league career. But at age 12, the concern is that if you’re getting an operation on your shoulder or elbow, how long will the player last? Will they last through high school or college or even professional baseball if that’s their goal?”

Akizuki ’s grateful that the medical school stressed the importance of treating not just the injury but the whole person. “You are taught the physiology and the anatomy,” he says, “but you’re also taught to always remember that you’re dealing with a human being.”

After applying what he learned during his residency at Los Angeles County Harbor-UCLA Medical Center, Akizuki was immediately invited in 2000 to join the Giants medical team. He became the team’s orthopedic surgeon in 2004.

As he’s working in the locker room, he frequently sees Mays and other noted former Giants, such as Willie McCovey and Orlando Cepeda, but it’s the current staff who receive the bulk of his attentions.

“I try not to get involved in players’ lives,” Akizuki says. “I need to be their doctor and maintain objectivity and distance. Inside me, it’s like a dream. This is the team you rooted for as a kid. I want to be a fan and root for them. But you can’t act like a fan. You’ve got to be professional.” ■

RESIDENT PROFILE



Medical Resident Jennifer Ambroggio, M.D.

Fertile Research

MEDICAL RESIDENT JENNIFER AMBROGGIO LOOKS FOR NEW METHODS FOR IDENTIFYING THE BEST EMBRYOS TO ENSURE SUCCESSFUL IMPLANTATION

A decade ago, Jennifer Ambroggio, M.D., was a seasoned embryologist living in California with her husband and young child. But something wasn't quite right. "I felt isolated in the lab," she remembers. "It was my relationship with the patients who benefited from my work that was the most fulfilling." So Ambroggio and her family packed their bags and moved east, so she could attend medical school.

Now, Ambroggio, a resident at GW's School of Medicine and Health Sciences (SMHS), is glad she made the move — and GW is glad too, presenting her with the 2011 Clinical Research Award during this year's Research Day for a study that could influence future assisted reproductive technology (ART) procedures.

Patients undergoing ART procedures, such as in vitro fertilization (IVF) or fertility drug treatment, are more likely to have multiple-birth pregnancies than women who conceive naturally. Although just 1 percent of the infants born in the United States were conceived through some form of ART

in 2006, according to CDC reports, they account for almost 20 percent of multiple births nationwide. For many women, multiple-birth pregnancies are not just undesirable — they are dangerous, posing a higher risk of complications, including preterm births and low birth weight.

Ambroggio's study, called "Multi-nucleation of a Sibling Blastomere on Day 2 Suggests Unsuitability for Embryo Transfer in In Vitro Fertilization — Preimplantation Genetic Screening Cycles," explores new methods of predicting which embryos are healthiest and best suited for implantation, a technique that could lead to both an increased likelihood of a successful pregnancy following IVF and a reduction in the number of multiple-birth pregnancies. The study was published in the American Society

for Reproductive Medicine journal *Fertility and Sterility* (v. 94, n. 4, p. S127).

Ambroggio and researchers at the GW IVF Center analyzed cells from 1,189 three-day-old embryos to test for aneuploidy — genetic damage resulting in any number of chromosomes other than the normal 23. Their data showed that embryos containing multinucleated blastomeres, even when found to be normal following preimplantation genetic diagnosis, did not result in any successful pregnancies.

Blastomeres are the cells that make up an embryo during its first few days of development. During normal meiosis, each cell nucleus must replicate itself. When the cell divides, sometimes the nucleus will double itself but the cytoplasm won't divide, resulting in a multi-nucleated blastomere. "Not every embryo, even one created in vivo, is genetically normal," says Ambroggio. Those with inherent genetic abnormalities are more prone to multinucleation, she explains.

Ambroggio concluded that given the choice, physicians should pick an embryo without multi-nucleated blastomeres. "Or, if you have a lot of embryos to choose from and you are undergoing preimplantation genetic testing," she adds, "you can forgo biopsying those embryos with multi-nucleated blastomeres, because you can be pretty certain that they're not going to lead to a pregnancy. This would save money for patients, and help them achieve better outcomes."

—Thomas Kohout

Akman Tapped by Mayor to Serve on D.C. HIV/AIDS Commission

Jeffrey S. Akman, M.D. '81, G.M.E. '85, interim vice provost for health affairs and dean of GW's School of Medicine and Health Sciences, was appointed by Washington, D.C., Mayor Vincent Gray to serve on the newly established Commission on HIV/AIDS. Akman is recognized as an expert in the psychiatric care of gay, lesbian, bisexual, and transgender individuals (GLBT).

"Mayor Gray's decision to establish this commission reflects a significant commitment by the city to intensify its efforts to address the HIV/AIDS epidemic that is affecting so many people in the nation's capital," Akman said.

With an HIV/AIDS prevalence of more than 3 percent among its adult population, Washington, D.C., suffers from the highest infection rate of any city in the United States and a rate more than three times above the threshold for what the Centers for Disease Control and Prevention considers a "severe epidemic."

Akman is one of a handful of psychiatrists who defined and developed the field of HIV/AIDS psychiatry in the mid-1980s. He was the principal investigator of a National Institutes of Health grant to train health care professionals in medical and mental health aspects of HIV/AIDS, and has presented at numerous national meetings on the subjects of HIV/AIDS neuropsychiatry and GLBT psychiatry. ■

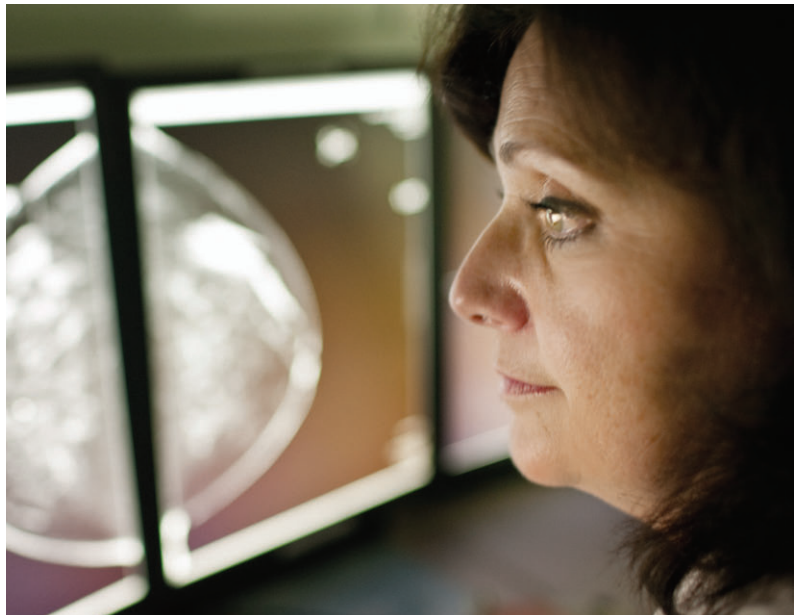
Signing on with the Senior Society

GW's School of Medicine and Health Sciences (SMHS) Senior Alumni, Faculty, and Emeriti Society recently welcomed Edward De Fabo, Ph.D., research professor of Microbiology, Immunology, and Tropical Medicine; Willis A. McGill, M.D., professor of Anesthesiology and Critical Care Medicine and of Pediatrics; Frances Noonan, M.D., professor of Microbiology, Immunology, and Tropical Medicine; Stephen Rosenblum,

M.D., clinical professor of Psychiatry and Behavioral Sciences; and Melvin Stern, M.D., clinical professor of Psychiatry and Behavioral Sciences, into its select association. All five new members are also in the 2011 class of GW emeriti faculty.

The Senior Society, chaired by Seymour Perlin, M.D., professor emeritus of Psychiatry and Behavioral Sciences; Constance Battle, M.D. '67, adjunct professor of Prevention and Community Health; and Stanley Marinoff, M.D., professor emeritus of Obstetrics and Gynecology, promotes continued intellectual, creative, and social engagement for GW medical emeriti, retiring/retired faculty, and local alumni from SMHS who graduated in the 1970s or earlier.

Launched in the spring of 2010 with the motto, "You can't retire from what you are," the society hosts a series of events that foster and preserve relationships among physicians, scientists, and scholars who are transitioning into retirement from their faculty positions or local practices, but who wish to remain productive in their discipline. ■



Rachel F. Brem, M.D., F.A.C.R.

Brem Welcomed as Fellow in the American College of Radiology

Rachel F. Brem, M.D., F.A.C.R., director of Breast Imaging and Intervention, and vice chair, Department of Radiology at GW's School of Medicine and Health Sciences, was welcomed as a Fellow in the American College of Radiology (ACR) during the association's 88th ACR Annual Meeting and Chapter Leadership conference.

Brem is among the just 10 percent of ACR members who achieve this high honor, which is awarded to clinicians with a history of service to the ACR, as well as achievement in Radiology, teaching, or research. ■

Griffith Receives Award for Contributions to Psychiatry and Culture

James L. Griffith, M.D., professor of Neurology, interim chair of Psychiatry and Behavioral Science, and director of the Psychiatry Residency Program at GW's School of Medicine and Health Sciences (SMHS), received the Creative Scholarship Award from the Society for the Study of Psychiatry and Culture (SSPC) at its annual meeting, June 2–4. The award is given annually to an individual who has made a recent, significant, and creative contribution to the field of cultural psychiatry.

“Learning how to treat patients within the family, community, and cultural contexts of their lives is still a frontier for American psychiatry. I am honored to be given the Creative Scholarship Award for my efforts,” said Griffith, who developed a model of psychiatric residency training that focuses on both culture and neuroscience to prepare residents for practice in the multiethnic and international communities of Washington, D.C.

Two SMHS Psychiatry residents were also recognized during the SSPC meeting. Yavar Moghimi, M.D., a fourth-year resident and recipient of the 2010 John Spiegel Fellowship, presented a documentary about how long-term inmates in the Washington, D.C., prison system adjust to life outside prison following their release. Brandon Kohrt, M.D., a third-year resident, received the 2011 John Spiegel Fellowship for his work with the Carter Center to improve mental health care in Liberia. ■



The Developing Brain and Cancer

Just a few decades ago, the connection between neurobiology and cancer biology was suspected, but unspoken.

“Today it is one of the most robust interfaces between basic neuroscience and clinical medicine,” said Anthony-Samuel LaMantia, Ph.D., professor of Pharmacology and Physiology in GW's School of Medicine and Health Sciences (SMHS) and founding director of the GW Institute for Neuroscience at the first annual Neuroscience symposium, April 27.

The symposium, titled, “The Developing Brain and Cancer,” featured four leading researchers — including SMHS's Sally Moody, Ph.D., professor of Anatomy and Regenerative Biology, and Vittorio Gallo, Ph.D., professor of Neuroscience at SMHS and director and Wolf-Pack Chair in Neuroscience at the Center for Neuroscience Research at Children's National Medical Center. They highlighted advances in neuroscience that contribute to the understanding of the developing brain and how cancer can compromise it.

Moody detailed the earliest stages of nervous system development, and Gallo discussed how certain signaling

pathways help maintain the balance between specific, critical types of neurons developed in the brain.

After presentations by graduate SMHS students, the GW Cancer Institute hosted a panel discussion about the future of neuroscience research moderated by the institute's Executive Director Steven Patierno, Ph.D. ■

Cawley Receives Eugene A. Stead Award of Achievement

The American Academy of Physician Assistants (AAPA) selected James Cawley, P.A.-C., M.P.H, professor of Physician Assistant Studies in GW's School of Medicine and Health Sciences (SMHS), to receive the Eugene A. Stead Award of Achievement for his pivotal role in moving the Physician Assistant (P.A.) profession forward through his work as a certified practitioner, educator, scholar, and leader.

Cawley is founder and director of GW's joint P.A./M.P.H. program, the first of its type in the United States, which trains individuals for careers that bridge clinical practice and disease prevention. ■

Wasserman Elected to AOA Board

Alan G. Wasserman, M.D., Eugene Meyer Professor, and chair, Department of Medicine and President, GW Medical Faculty Associates, has been elected to the board of directors of Alpha Omega Alpha as a councilor director. The board consists of members of the society elected by the board of directors based on recommendations from the nominating committee and installed after election by the board.

Wasserman previously served as an Alpha Omega Alpha councilor,

helping to nominate local members, contribute to service projects, and administer chapter activities. As a councilor director, he will maintain his responsibilities as a councilor, as well as assist in the decision-making process that will lay the foundation for the future of the society. ■

Look Before You Tweet

New research conducted by Katherine Chretien, M.D., F.A.C.P., associate professor of Medicine at GW's School of Medicine and Health Sciences, reveals that although social media has a potential positive role in medicine, greater accountability and clear guidelines are needed, as some physicians who are regular users of Twitter are disseminating unethical and unprofessional content. A research letter titled, "Physicians on Twitter," was included in the Feb. 9 edition of the *Journal of the American Medical Association*.

"This research helped us to identify how physicians are using social media and has helped us gauge whether or not there is need for greater accountability for physicians who use social media," said Chretien. "While the majority of tweets were potentially helpful, the ethical breaches and unprofessional content raised a red flag."

The study, approved by the Washington, D.C., Veterans Administration Medical Center, was initiated to review the professionalism of self-identified physicians on Twitter and how they use the social media tool. Over a one-month span Chretien examined 5,156 tweets from 260 physicians with 500 or more followers. She found that 3 percent of the tweets could be categorized as "unprofessional," meaning that they included profanity, potential patient privacy violations, sexually explicit material, or discriminatory statements. ■

Newman Named CEO of Children's National

Kurt Newman, professor of Surgery, and of Pediatrics, at GW's School of Medicine and Health Sciences, was named president and chief executive officer for Children's National Medical Center effective Sept. 1, 2011. Newman has been at Children's National for more than 25 years and most recently served as the senior vice president of the Joseph E. Robert Jr., Center for Surgical Care.

"Dr. Newman articulated an impressive vision to lead Children's National," said James Lintott, chair of the Board of Directors at Children's National Medical Center. "He is an accomplished physician, researcher, educator, and

administrator and is poised to lead an already vibrant team dedicated to caring for kids."

A board committee launched a national search following the retirement announcement by Edwin K. Zechman, after 17 years of leadership. ■



Margaret Plack, P.T., Ed.D.

Margaret Plack, P.T., Ed.D., Receives American Physical Therapy Association's Award

Margaret Plack, P.T., Ed.D., interim senior associate dean for the Health Sciences Programs and associate professor of Health Care Sciences at GW's School of Medicine and Health Sciences (SMHS), received the Award for Leadership in Education from the American Physical Therapy Association (APTA). This award, which is the highest honor conferred by the education section of APTA, is given to individuals who have had a substantial impact on physical therapy and physical therapy education through scholarship, teaching, administration, and service activities.

"There are few people in the country who have accomplished as much as Dr. Plack to advance our understanding of the importance of physical therapy and how it can help improve the lives of patients, especially children," says Jeffrey S. Akman, M.D. '81, G.M.E. '85, interim vice provost for Health Affairs and dean of SMHS.

Plack received her award during the education section business meeting and reception at the combined sections meeting of the APTA in February. ■



First-Year medical student Allison Hoff with Russell Libby, M.D. '79.

Adopt a Doc

NEW SCHOLARSHIP PROGRAM ENABLES SMHS ALUMNI TO PUT A FACE AND A NAME TO DONATIONS

Allison Hoff had nearly exhausted her five minutes at an Internet café when the e-mail arrived. “Congratulations!” it read. “Based on your exemplary record, the Committee on Admissions is pleased to offer you a School of Medicine Scholarship ... while in the Doctor of Medicine degree program at The George Washington University.”

“I was shocked,” says Hoff, who was attending a wedding in Greece before moving from California to Washington, D.C., to begin life as a GW medical student.

Hoff, a former Peace Corps volunteer, had never even heard of — let alone applied for — the scholarship she received. No one had. But with that e-mail, Hoff became the first “Adopt a Doc” scholar in a new program through which School of Medicine and Health Sciences (SMHS) alumni can support an incoming medical student’s education with a minimum gift of \$20,000 over four years.

To whom did Hoff owe thanks for the generous surprise? SMHS alumnus Russell Libby, M.D. '79, a Virginia pediatrician who developed the fund in memory of his mother, Leona Libby Feldman. Libby’s siblings and stepfather, and each of their families, have since contributed to the fund.

“I wanted to create something that embodies who my mother was in a concise and meaningful way,” says Libby, a longtime donor to SMHS. “I feel good knowing that the contribution has a name and a face and is someone for whom I can potentially act as a mentor.”

Hoff and Libby met for the first time on Aug. 10. It was the beginning of what is expected to be a special relationship for both. “Being a physician has been a huge privilege,” says Libby. “I am grateful for my roots at GW, and I feel it is my duty to support those who come after me.” ■

Savvy Support from Evelyn Y. Davis

The business-savvy side of Evelyn Y. Davis appreciates that her physicians at The George Washington University Medical Faculty Associates (MFA) work together to keep her healthy. In order to show them just how much she appreciates them, she and the Evelyn Y. Davis Foundation recently established the Evelyn Y. Davis Fund with a gift of \$100,000 to support several MFA clinical departments.

Davis, who studied Business Administration at GW, considers herself the nation’s foremost activist-shareholder. She owns stock in roughly 80 corporations and has been a vocal participant at shareholder meetings across the country since the 1960s. She is the founder and editor of *Highlights and Lowlights*, a national financial newsletter featuring analysis on key business issues such as corporate governance and executive compensation, which is distributed only to the CEOs of national corporations. Davis is a regular guest on financial news programs such as CNBC, *Fox Business News*, and *Comcast Newsmakers*, and is frequently featured in many national newspapers. She also has been an invited lecturer at many universities and colleges, including Babson College, Northwestern University’s Medill School of Journalism, the Darden School of Business at the University of Virginia, and Penn State’s School of Journalism.

Born in Amsterdam, the Netherlands (which, she jokes, was “on the wrong side of the ocean, but the very right side of the tracks”), Davis was a member of GW’s Class of 1951, the same class as Jacqueline Bouvier Kennedy Onassis, and has generously offered support to many areas of the University.

“Evelyn Y. Davis has always been very supportive,” says Alan G. Wasserman, Eugene Meyer Professor, and chair Department of Medicine, and president of the MFA. “Thanks to her generosity, we will be able to advance our clinical care programs and provide service to our patient community.”

Continued on page 34



Above from left, George Washington University President Steven Knapp, Evelyn Y. Davis, and Medical Faculty Associates CEO Stephen Badger.

1940s

LUTHER W. BRADY, M.D. '48,

Distinguished University Professor, Department of Radiology Oncology, Drexel University College of Medicine, recently received the Philadelphia County Medical Society's Cristol Award for enhancing the society's educational, scientific, and charitable goals. Brady also received the Pennsylvania Medical Society's Distinguished Service Award.

BERNARD OSTROW, M.D. '48,

retired last year after many years of service in the Department of Medicine at GW's School of Medicine and Health Sciences.

1960s

FLOYD D. LOOP, M.D. '62, G.M.E. '68, joined the board of directors for Management Health Solutions, Inc. Loop has been published more than 350 times and has served on the editorial boards of numerous health care publications.

ARTHUR SIMINGTON, M.D. '68, received the Franklin Norwood Rogers Award as New Hampshire Retired Pediatrician of the Year for 2010. He officially retired in 2001, but stayed on as a consultant in the developing field of pediatric mental health care until 2003.

1970s

RICHARD L. ABBOTT, M.D. '71, was named the new president of the American Academy of Ophthalmology on Jan. 1, 2011. Abbott was most recently a member of the academy's Committee of Secretaries and chair of the board of Ophthalmic Mutual Insurance Company. He received the academy's Lifetime Achievement Award in 2006, and he was elected into the Academia Ophthalmologica Internationalis in 2008.

PAUL ROTH, M.D. '76, chancellor of the University of New Mexico (UNM) Health Sciences Center and dean of the UNM School of Medicine, will serve as chair-elect for the Greater Albuquerque Chamber of Commerce Board of Directors. He recently served as acting president of UNM while President David Schmidly recovered from surgery to remove a small tumor.

1980s

MICHAEL R. MARKS, M.D. '82, G.M.E. '87,

M.B.A., was appointed vice president of business development at Norwalk Hospital in Connecticut. Marks will be responsible for the hospital's business development, occupational health services, and marketing and communications.

MELANIE BONE, M.D., G.M.E. '86, received the **ANNUAL WOMEN IN LEADERSHIP AWARD** presented by the Executive Women of the Palm Beaches, on May 2011, for her hard work, passion, and success in medicine.

WILLIAM HIGGINS, M.D. '86, was named the Medical Director of the Westchester Medical Practice, in Yorktown Heights, N.Y., where he will oversee the medical operations of the group.

JEFFREY S. FISCHGRUND, M.D. '87, was named one of the **100 BEST SPINE SURGEONS AND SPECIALISTS IN AMERICA** by *Becker's Orthopaedic and Spine Review*. Fischgrund is a spine surgeon at Beaumont Orthopaedic Center in Royal Oak, Mich. He is a researcher on bone morphogenic proteins and cervical disc replacements. Fischgrund has served as editor-in-chief of the *Journal of the American Academy of Orthopaedic Surgeons* since 2009.

MICHAEL CLYDE DOLL, P.A.-C. '88, was recently elected to serve a two-year term as director-at-large for the American Academy of Physician Assistant's Board

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KASSAN INDUCTED INTO ALPHA OMEGA ALPHA

STUART S. KASSAN, M.D. '72, F.A.C.P., F.A.C.R., was inducted into the Alpha Omega Alpha (AOA) Honor Medical Society's Class of 2011 in recognition of his dedication to the profession and art of healing. As a member of the University Board of Trustees and president of GW's School of Medicine Alumni Association, Kassan was elected to the GW chapter by AOA members representing students, faculty, and staff of the GW School of Medicine and Health Sciences.

"It's a tremendous honor to be recognized by peers, and even more gratifying when that recognition comes from your medical school alma mater," said Kassan.

Kassan is an internationally known expert in the treatment of Sjogren's Syndrome, a complex rheumatic disease that typically affects multiple areas of the body. He has served as a clinical

professor of Medicine at the University of Colorado Health Sciences Center since 1994.

Election to Alpha Omega Alpha is a lifelong honor signifying a lasting commitment to scholarship, leadership, professionalism, and service.

James Katz, M.D., professor of Medicine; David Diemert, M.D., assistant professor of Microbiology, Immunology, and Tropical Medicine; David Popiel, M.D., assistant clinical professor of Medicine; Howard Pryor, M.D., Surgery; and Jeanne Yu, M.D., assistant clinical professor of Medicine; were also elected to GW's AOA Class of 2010-11. Edward O'Neil Jr., M.D. '87, was elected as an alumnus member; and Peter Moskovitz, M.D., clinical professor of Orthopaedic Surgery, received the Volunteer Clinical Faculty Award.

FOUNDING DEAN

HAL B. JENSON, M.D. '79, was selected from a pool of more than 60 applicants to become the founding dean of the Western Michigan University (WMU) School of Medicine in spring 2011. Jenson most recently served as a professor of pediatrics and regional dean in Springfield, Mass., at the Western Campus of the Tufts University School of Medicine in Boston. He brings more than 30 years of experience as a physician and educator to his new position.

"Dr. Jenson is the right choice to lead the development of our medical school," said WMU President John M. Dunn. "He brings a strong background in academic medicine, medical education, and research."

Philanthropy, continued from page 32

Residential Support

A home can offer shelter, safety, and a sense of belonging, but what if it could also provide a path to self-discovery, or academic achievement, or advancements in research? A generous gift from a former medical resident promises to help GW's School of Medicine and Health Sciences do just that by training future generations of mental health professionals and helping them cope with the rigors of their profession. And it's all thanks to a home.

Cynthia B. Stevens, M.D., G.M.E. '89, and her husband, Charles W. Havens IV, have created a fund to support psychotherapy and psychoanalytic training for psychiatry residents at GW. Established through a bequest stemming from the sale of their home in Lander, Wyo., the endowed fund will enable the Department of Psychiatry and Behavioral Sciences to continue to attract skilled residents. The fund will provide financial assistance to residents for personal psychotherapy — a key component of comprehensive training in psychotherapy and a cornerstone of psychoanalytic training.

Stevens, a board-certified psychiatrist and psychoanalyst, served as the chief resident for outpatient services during her training at GW. Her clinical expertise and interest lie with personality development, life change issues and stressors, and anxiety and depressive disorders. She has been nationally recognized for her outstanding contributions to medical student and resident education. ■



"As I enjoy retirement, I continue to reflect on GW—the place where it all started. Through my estate planning, I'm doing my part to ensure that the dream I lived can be realized by others in the future."

— George Ellis, MD '56

Dr. Ellis is supporting the GW Medical Center with a gift of \$100,000 through his IRA. His estate will receive a significant tax deduction and GW will receive the designated portion of his IRA tax-free.

Creating a Meaningful Legacy at GW is easy.

If you have a retirement plan, it's easy to help deserving students receive a world-class education in the nation's capital. You can name the GW School of Medicine and Health Sciences, Public Health and Health Services, or Nursing as a beneficiary of some or all of the funds that may remain in your IRA, 401(k), or other plan after your lifetime. Just complete a new beneficiary designation form that includes the Medical Center and its Tax ID number (53-0196584) and submit it to your plan administrator.

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- Elimination of income and estate taxes that otherwise would be due.
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EMAIL: plannedgiving1@gwu.edu

ONLINE: www.gwu.edu/give/plannedgiving

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of Directors. Doll is a clinically practicing physician assistant at the Geisinger Medical Center in Danville, Penn.

1990s

K. DANIEL RIEW, M.D., G.M.E. '94, was named one of the **100 BEST SPINE SURGEONS AND SPECIALISTS IN AMERICA** by *Becker's Orthopedic and Spine Review*. Riew is the chief of Washington University School of Medicine's surgical spine center and director of the university's Cervical Spine Institute. Among his clinical and research interests, Riew leads a group of experts at Washington University treating the spinal injuries of retired National Football League players.

SOFIA TEFERI, M.D. '97, F.A.A.P., has been selected to participate in the 2010–11 class of the Claude Moore Physician Leadership Institute, where she will strengthen her leadership abilities and gain the skills necessary to improve health care in Virginia.

2000s

STEVEN CUNNINGHAM, M.D. '01, has joined the staff at St. Agnes Hospital in

Baltimore, Md., and will specialize in pancreatic and liver surgery. His recently published bilingual book of children's poetry, *Dinosaur Name Poems*, was selected as winner of the 2009 Moonbeam Children's Book Award.

LT. CMDR. PETER SEBENY, M.D. '03, M.P.H. '97, deputy head, clinical trials and military studies, and research physician in the United States Navy at the U.S. Naval Medical Research Unit No. 3 in Cairo, was awarded the medal "Knight of National Order of June 27th" by Djibouti Prime Minister His Excellency Dileita Mohamed Dileita, for his efforts in supporting capacity-building projects with the Djibouti Ministry of Health.

JOHN YARBROUGH, M.D. '04, M.B.A., recently joined the medical staff at St. Joseph's Behavioral Health Center in Stockton, Calif. He is a member of the American Academy of Psychiatry and Law, the American Academy of Child and Adolescent Psychiatry, and the American Psychiatric Association, and Vice President of the Christian Medical and Dental Association — Psychiatry Section.

SUMMER OF SERVICE

JACK SUMMER, G.M.E. '81, received the Jane Lingo Alumni Outstanding Service Award this spring in recognition of his long-standing commitment to educating and mentoring GW medical students as well as providing desperately needed basic medical care for some of the world's most underserved communities.

Summer leads teams of doctors as well as GW medical and public health students on a medical mission each spring to Thomonde, in Haiti's impoverished Central Plateau. The trips, in cooperation with the nonprofit organization Project Medishare, offer students the opportunity to learn firsthand about the health problems that plague Haiti, as they help provide basic health care to as many as 200 patients daily in health centers and mobile clinics, treating patients for both acute and chronic diseases.

Summer completed his internship and residency training in Internal Medicine at SMHS in 1981. He was a member of the GW Medical Faculty Associates, and served as associate chair for clinical affairs in the Department of Health Care Sciences until 1991. Summer currently practices in Washington, D.C., and also serves as assistant clinical professor of Medicine at GW.

The Jane Lingo Alumni Outstanding Service Award was created in honor of Jane Lingo, B.A. '46, a dedicated alumna, staff member, and friend of GW. The award is presented annually to faculty or staff members who are also George Washington University alumni.

In Memoriam

ALUMNI

BERNARD KATZEN, A.A. '34, M.D. '38, the first of six family members to attend GW and the first of four Katzens to earn a degree from its School of Medicine and Health Sciences (SMHS), passed away on Aug. 3, 2011.

Katzen served in World War II and was a member of the invasion forces that landed on Normandy Beach June 6, 1944, according to his *Washington Post* obituary. After the war, he opened a family practice, which he maintained for 49 years.

The Katzen family is deeply intertwined with the success of The GW Cancer Institute (GWCI). Katzen, his wife Mildred, A.A. '45, B.A. '46, his late brother Cyrus, and his sister-in-law Myrtle devoted considerable time and attention to raising awareness and support for GWCI's mission, particularly in the areas of general oncology, radiation oncology, and clinical care.

Katzen is survived by his wife; his sister, Sally Cohen; his sons, Burton and Harvey; three grandchildren; and three great-grandchildren. Katzen's son Harvey and grandson Jason are SMHS alumni, having earned their M.D. degrees in '75 and '06, respectively. His nephew — Jay Katzen, B.A. '67, M.D. '72 — is a GW trustee.

LEONARD C. AKMAN, B.A. '41, M.D. '43, passed away April 2, 2011. After receiving his B.A. and M.D. from GW, Akman performed his residency in Internal Medicine at Sinai Hospital in Baltimore, Md. In 1946 he joined the United States Army and served as a captain and medical officer general, and later served as a

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U.S. merchant marine ship surgeon. Following a cardiology fellowship at Michael Reese Hospital and Medical Center in Chicago, Akman returned to Sinai Hospital, rising to the post of chief of the Division of Cardiology. Akman performed early research in heart transplantation and was a pioneer in the use of cardiac catheterization and cineradiography. Akman was a fellow of the American College of Physicians, the American Heart Association, and the American College of Cardiology, where he also served as a governor. He is survived by a loving family, including Jeffrey S. Akman, M.D. '81, interim vice provost for Health Affairs and dean of the School of Medicine and Health Sciences.

EDWARD MCFARLAND, M.D. '41, longtime friend and supporter of the GW School of Medicine and Health Sciences, died in March 2010 at the age of 94. He served in World War II as a flight surgeon and was awarded two battle stars. He practiced medicine, obstetrics, and anesthesiology from 1946 to 1979.

FACULTY

HERBERT WEINTRAUB, M.D., retired professor emeritus of Anesthesiology at GW Hospital, chair of the operating room committee, chair of the audit committee at the Medical Faculty Associates, and chair of the Graduate Education Planning Committee, died Feb. 24, 2011.

HENRY FEFFER, M.D., a GW professor emeritus and prominent Washington, D.C., spine surgeon, died May 9, 2011. Feffer began practicing in Washington in the late 1940s, and was one of the first white physicians to

openly treat black patients. Feffer chaired the medical advisory committee for the humanitarian aid organization CARE and spent many vacations during the 1960s and '70s

training doctors in countries such as Vietnam, Algeria, and Afghanistan. He became an emeritus professor in the mid-1980s.

In Memoriam

ALUMNI

SEYMOUR L. ALTERMAN, M.D. '47

HECTOR L. ALVAREZ, B.S. '99

LEN HUGHES ANDRUS, M.D. '44

RODNEY A. APPELL, M.D., G.M.E. '75

VERNA Y. BAREFOOT, M.D. '50

ROLF H. BESSIN, M.D. '64

WAYNE BUCHANAN, CERT '95

RALPH J. CARBO JR., M.D., G.M.E. '50

ROBERT J. CEREMSAK, M.D. '60

CONSTANCE LARK CERNY, B.S. '80

ROBERT N. COALE, M.D. '43

MAURICE C. COVEY, M.D. '56

ROBERT HERMAN CRABTREE, M.D. '54

WOODROW F. CROSBY III, CERT '03

CLEM C. CROSSLAND JR., M.D. '46

CRAIG MICHAEL CURTIS, CERT '04

SHERMAN DANIELS, M.D., G.M.E. '87

ANDREW P. DEDICK, M.D. '43

EDWARD A. DOWNS, M.D. '54

MICHAEL EDWARD DRINKWATER, A.S. '84

VICTOR ESCH, M.D. '48

KANG FAN, M.D., G.M.E. '69

RICHARD LEE FARMER, M.S. '07

DONNIE D. FLINT, B.S. '82

MILTON A. FOOR, M.D. '52

SAMUEL E. FRISHMAN, B.S. '53

MICHAEL V. GALLAGHER, CERT '03

CARMEN GANNON, M.D. '76

PAMELA ELIZABETH GELDER, B.S. '95

JOEL STEPHEN GLASER, M.D., G.M.E. '64

JOHN S. GLEATON, CERT '04

ROBERT P. HABERKERN, M.D., G.M.E. '70

WILLIAM H. HALL, M.D., G.M.E. '79

ALAN C. HAMPSHIRE, M.D. '59

PERCY J. HOWARD, M.D. '53

DENNIS R. JACKSON, B.S. '90

DOROTHY S. JAEGER-LEE, M.D. '39

DONALD A. JOHNSON, M.D. '45

JOHN M. KENNELLY JR., M.D. '48

DANIEL L. KIRK, M.D. '43

CARL R. LAHTI, M.D. '49

JOHN M. LANHAM, M.D. '62

GRAHAM SELDON LEES, B.S. '88

WILLIAM W. LOEBMAN, M.D., G.M.E. '79

IVAN B. MAHADY, M.D. '67

RALPH A. NERNBERG, B.S. '50

FREDERICK C. NORCROSS, M.D. '64

SAMANTHA C. NOSEK, CERT '04

RAYMOND A. NUEVE, CERT '00

MELVIN ORAM, M.D. '53

SUZANNE M. PITTS, M.D. '60

CHARLES PLOTKIN, M.D. '83

MARGARET ANN RAGAN, CERT '96

IRVING L. REIF, M.D. '36

GUY A. RICHARDS, M.D. '43

PHYLLIS A. RIGGS, B.S. '84

RALPH B. ROMNEY, M.D., G.M.E. '49

MARK H. ROZANS, M.D. '86

ROBERT GORDON SCHALLER, A.S. '77

VICTOR SCHOCKEN, M.D. '56

BRIAN GERARD SCORNACK, CERT '04

SOL SHAZ, M.D., G.M.E. '69

WILLIAM H. SHEFFIELD, M.D. '61

CATHERINE R. SMITH, M.D. '41

DAVID F. SMITH, M.D. '58

EUGENE O. STEVENSON, M.D. '60

ERIN F. STEWART, M.D. '02

DANIEL J. STONE, M.D. '43

ANNE M. THOMPSON, M.D., G.M.E. '71

EMMET J. THORPE, M.D. '51

HELEN R. THORSEN, B.S. '83

DUSAN TISMA, M.D., G.M.E. '80

LOIS W. TURNBAUGH, M.D., G.M.E. '71

RICHARD H. VELAJ, M.D., G.M.E. '85



H. George Mandel, Ph.D., circa 1966

H. George Mandel, Ph.D.

June 6, 1924 – July 15, 2011

Everybody knew H. George Mandel, Ph.D., a faculty member in GW's School of Medicine and Health Sciences' (SMHS) Department of Pharmacology and Physiology for over 60 years. "Even when I went to the doctor, the doctor would ask, 'How's George?'" says Stella Moody, manager of departmental fiscal operations, who worked with Mandel for 17 years.

And, according to Moody, SMHS faculty, staff, and students regularly used words such as *kind* and *gentle* to describe Mandel, demonstrating that he wasn't only well-known — he was also well-loved. So it is an understatement to say that Mandel, who — as far as records indicate — was the longest-serving faculty member in SMHS history, will be missed. Mandel passed away July 15, 2011, at age 87.

"It is difficult to exaggerate all that George Mandel did for our department and our school," wrote Vincent Chiappinelli, Ph.D., interim associate dean of SMHS, associate vice provost for health affairs, and chair of the department, upon hearing the news of Mandel's passing. "He joined GW in 1949 and continued to give lectures, run the Caucus of Basic Biomedical Science Chairs, and interview prospective students up until a few years ago. He was loved by our students, faculty, and staff. George was a gentle and sincere man who helped so many people. He made a difference and will be missed."

Mandel joined GW as a research associate and served as a faculty member from 1950 to 2010, including 36 years as department chair of the Department of Pharmacology prior

to its merger with Physiology. After stepping down as department chair in 1996, he continued to conduct research and mentor young faculty members and medical students until 2010, when he became chair emeritus. In his letter recommending Mandel for emeritus status, Chiappinelli wrote, "Dr. Mandel has made huge contributions to our school in many areas, including leadership, teaching, research, and service. In so many ways [he] exemplifies the 'long and distinguished service to the University' that is described in the faculty code when reviewing faculty members for emeritus status."

Mandel's love of teaching students was evident in his participation in various activities, including Problem-Based Learning, a series of small group conferences in which he discussed clinical problems with first- and second-year medical students. He also organized a pharmacology discussion group elective for senior medical students. One of his mentees, Julius Axelrod, Ph.D., won the Nobel Prize in Physiology or Medicine in 1970 for work on a class of neurotransmitters.

Equally passionate about research and policy, Mandel served as chair of the National Caucus of Basic Biomedical Science Chairs from its founding in 1991 until 2008. The caucus was a groundbreaking science policy group composed of leaders of science associations and chairs of basic science departments across the country, which promoted increased funding for health research by educating political leaders about its importance in improving the health of citizens.

Mandel received numerous awards throughout his career, including the Distinguished Achievement Award from the Washington Academy of Sciences in 1958; the Golden Apple Teaching Award from the Student American Medical Association in 1969, 1985, and 1997; GW's George Washington Award in 1998; and the 2005 Distinguished Researcher Award during GW's 2005 Research Day. He became a member of the Society of Distinguished Teachers at SMHS in 2001.

During World War II, Mandel worked for the U.S. military as an interrogator. As a German immigrant and chemist, Mandel was recruited to "interrogate scientifically trained and experienced German prisoners of war who had been sent to this country by the military," he told NPR in a 2008 interview about Fort Hunt, the camp where he worked. All information he and his colleagues gained — which included "discoveries in microwaves, atomic and molecular studies, jets used in German planes, and submarine technology" — was sent directly to the Pentagon, according to a 2008 *Washington Post* article.

"Dr. Mandel's contributions to GW and to this nation are immeasurable," said Jeffrey Akman, M.D., interim vice provost for Health Affairs and dean, SMHS. "He will be greatly missed by his colleagues and by the thousands of SMHS alumni he taught and mentored." ■



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Keeping the San Francisco Giants Standing Tall

GW's School of Medicine and Health Sciences alumnus **Ken Akizuki, M.D. '93**, parlayed a love of baseball and a gift for medicine into a ticket to the big leagues with the San Francisco Giants as the team orthopedic surgeon.